DRAGNET

Aptitude Test Past Questions and Answers

(VERBAL / NUMERICAL / ABSTRACT REASONING)

Preparation pack

Entry-Level Recruitment

ABOUT DRAGNET JOB APTITUDE TEST

The test section measures your verbal reasoning ability, Logical reasoning and problem solving ability. This material provides in-depth insight into how the test looked like in the past.

BREAKDOWN:

20-NUMERICAL REASONING QUESTIONS	TIME=20MINUTES
20-VERBAL REASONING QUESTIONS	TIME=20MINUTES
10-16 ABSTRACT (INDUCTIVE) REASONING	TIME=10MINUTES

TEST SCORING SYSTEM

The questions in this test all carry equal marks and no negative marking is applied. However, it is advisable that you double-check your answer choices.

The test format includes Numerical Reasoning, Verbal reasoning and Abstract reasoning. Usually the same questions for all candidates.

USE OF CALCULATOR

Use of calculators are not allowed, but the test administrator is at liberty to decide whether or not use of calculators will be permitted in the hall. So it is best you factor in this reality, and try to practice without using calculator.

STUDY PACK NAVIGATION:

Use the in-built navigation system (at the left side of this study pack) to quickly go to any section you want to study.

RECOMMENDATION:

Please ensure that you go through all questions provided in this study pack to get a well rounded preparation. All questions from Dragnet's past entry level job aptitude test.

Happy Studying!

VERBAL REASONING TEST

1

Instructions

This verbal reasoning test comprises **20 questions** and you will have **20 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a short comprehension passage followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

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Although it was discovered in the 19th century that birds were closely related to dinosaurs, the current scientific consensus is that birds were, and always have been dinosaurs themselves. Fossil evidence demonstrates similarities between birds and other feathered dinosaurs, including hollow bones, nest building and similar brooding behaviours. Although the dinosaurian lineage of birds is largely undisputed, the evolution of powered flight in birds is still debated. Two theories of flight in birds are the “ground-up” theory, and the “trees-down” theory. Ground-up theorists suggest birds evolved powered flight from ground dwelling dinosaurs, and trees-down theorists suggest birds evolved from tree dwelling, gliding dinosaurs. Further research is required to conclusively verify the process in which birds evolved powered flight.

Q1 The “ground-up” and “trees-down” theories are the only theories explaining flight in birds.

True False Cannot say

Cannot Say - Although the “ground-up” and “trees-down” theories are stated to be theories of flight in birds, they are not stated to be the only two theories explaining flight in birds. Therefore, the correct answer is “Cannot Say”.

Q2 All dinosaurs had hollow bones.

True False Cannot say

Cannot Say - The passage states that other feathered dinosaurs also had hollow bones, not that all dinosaurs (non-feathered) also had hollow bones. Therefore, the correct answer is “Cannot Say”.

Q3 There is no scientific consensus regarding how birds evolved powered flight.

True False Cannot say

True - The passage states that further research is required to conclusively verify the process in which birds evolved powered flight. Similarly, it is stated that, the evolution of powered flight in birds is still debated. Therefore, the correct answer is “True”.

Q4 The dinosaurian origins of birds is widely rejected.

True False Cannot say

False - It is stated that the dinosaurian origins of birds is “largely undisputed”, and is therefore the antithesis of being widely rejected. Therefore, the correct answer is “False”.

A feral cat is a domestic cat that was raised in the wild, without having experienced significant human contact. Feral cats differ from stray cats, in that strays were previously pets which became nomadic. Unlike strays, feral cats initially show hostility towards humans, particularly upon first contact. Feral cats may become invasive to ecosystems, particularly on insular islands, resulting in a decline in biodiversity. Non-indigenous feral cats often have few natural predators, and prey on local species unaccustomed to defending against cats. Ground nesting birds, small native mammals and even amphibian species are often impacted by invasive populations of feral cats, and have led to extinctions of these species in some cases.

Q5 Both stray and feral cats exhibit hostility when first encountering humans.

True False Cannot say

False- The passage states that “Unlike strays, feral cats initially show hostility towards humans”. Since this distinguishes stray cats from feral cats, the correct answer is “False”.

Q6 Biodiversity can be affected by feral cat populations.

True False Cannot say

True - The passage states that feral cats can become invasive, resulting in a decline in biodiversity. Therefore, the correct answer is “True”.

Q7 Feral cats are rarely preyed upon.

True False Cannot say

Cannot say - Although non-indigenous feral cats have few predators, it is not stated whether all feral cats have few predators. Similarly, having few predators does not necessarily imply they are rarely predated upon, as feral cats could be regularly preyed upon by a single predator. Therefore, the correct answer is “Cannot Say”.

Q8 Domestic cats can be raised in the wild.

True False Cannot say

True - It is stated in the passage that feral cats are domestic cats, which have been raised in the wild. Since feral cats are given as an example, the correct answer is “True”.

The parable of the broken window, also known as the glazier's fallacy, is a concept used to illustrate the fact that money spent due to destruction does not result in a benefit to society. It has been suggested that repairing broken windows may provide employment to tradespeople, which could positively impact the economy through job creation. However, had the window not been broken, the money spent repairing it could have contributed elsewhere to the economy. Similarly, if windows never broke, those tradespeople would be free to contribute towards the economy in other occupations. The glazier's fallacy highlights the fact that destruction of property impacts economic activity in unseen or ignored ways, which are frequently overshadowed by more obvious economic effects.

Q9 The destruction of property has no effect on the economy.

True False Cannot say

False - The glazier's fallacy highlights that destruction of property impacts economic activity in unseen or ignored ways, meaning the destruction of property does have an effect on the economy. Therefore, the correct answer is "False".

Q10 Society does not benefit from the cost of repairing destroyed property.

True False Cannot say

True - The passage states that society does not benefit from the money spent on repairing destroyed property, and holds this as fact. Therefore, the correct answer is "True".

Q11 The destruction of property negatively impacts the economy.

True False Cannot say

Cannot Say - The passage does not state that the mere destruction of property negatively impacts the economy, only that the money spent repairing it does not benefit society, rather than the economy. Therefore, the correct answer is "Cannot Say".

Q12 Repairing broken windows results in job creation.

True False Cannot say

Cannot Say - he passage states that “It has been suggested that repairing broken windows may provide employment to tradespeople”, however this is uncertain. Therefore, the correct answer is “Cannot Say”.

The paradox of thrift, as popularised by John Keynes, highlights the fact that excessive saving during times of economic recession negatively impacts the economy. When spending is reduced due to excessive saving, aggregate demand falls, resulting in lowered economic growth. This excessive saving results in reduced economic growth, which in turn encourages further excessive saving, causing a vicious cycle. Reduced economic growth results in reductions in salary, job security and interest on savings, negatively impacting both savers and the economy. However, it could be argued that savings held in savings accounts represent loanable capital, which banks could use to stimulate the economy via lending and investment.

Q13 Excessive saving has no impact on economic growth.

True False Cannot say

False - The passage states that excessive saving lowers aggregate demand, resulting in lowered economic growth, which would impact economy growth. Therefore, the correct answer is “False”.

Q14 Excessive saving has no impact on savers themselves.

True False Cannot say

False - Excessive saving is stated to negatively impact both savers and the economy, therefore savers themselves must be impacted by excessive saving. Therefore, the correct answer is “False”.

Q15 Saving money negatively impacts the economy.

True False Cannot say

Cannot Say - The passage states that excessive saving, not regular saving, negatively impacts the economy. It is not stated what effect, if any, regular saving could have on the economy. Therefore, the correct answer is “Cannot Say”.

Q16 Excess saving has no effect on aggregate demand.

True False Cannot say

False - The passage states that “When spending is reduced due to excessive saving, aggregate demand falls”. Therefore, excessive saving must have an effect on aggregate demand, making the correct answer “False”.

The Moravec's paradox is the counter intuitive discovery by artificial intelligence researchers that advanced reasoning requires very little computational power, but basic sensory-motor skills are incredibly computationally complex. Activities considered complex by human standards, such as calculating statistics and playing chess are very easily accomplished by artificial intelligences. However, extremely basic activities, such as recognising faces or walking up a set of stairs requires vast computational resources, and can only be accomplished by the most advanced artificial intelligences. Although futurists predict a supersession of human workers by artificial intelligences, Moravec's paradox implies that advanced professions will be usurped first, not the simple or routine occupations, as commonly featured in science fiction.

Q17 Artificial intelligences perform advanced reasoning more effectively than humans.

True False Cannot say

Cannot say - It is not stated whether artificial intelligences perform advanced reasoning more effectively than humans, only that advanced reasoning requires little computational power. Therefore the correct answer is "Cannot Say".

Q18 Playing chess is a complex activity among humans.

True False Cannot say

True - It is stated that chess is an activity considered complex by human standards. Therefore, the correct answer is "True".

Q19 Simple artificial intelligences cannot recognise faces.

True False Cannot say

True - The passage states that only the most advanced artificial intelligences can recognise faces. If only the most advanced artificial intelligences are capable of this, simple artificial intelligences cannot. Therefore, the correct answer is "True".

Q20 Science fiction does not feature artificial intelligences.

True False Cannot say

False - The passage states that artificial intelligences are commonly featured in science fiction. Therefore, the correct answer is “False”.

VERBAL REASONING TEST

2

Instructions

This verbal reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with a short comprehension passage followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

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Work-related stress is one of the biggest causes of sick leave in the UK. If you've noticed you always seem to be rushing about, or miss meal breaks, take work home or don't have enough time for relaxation, seeing your family or for exercise, then you may well find yourself under stress, especially at work. There is often no single cause of work-related stress, but it can be caused by poor working conditions, long hours, relationship problems with colleagues, or lack of job security. Stress is often the result of a combination of these factors that builds up over time. Work-related stress can result in both physical problems such as headaches, muscular tension, back or neck pain, tiredness, digestive problems and sweating; or emotional problems, such as a lower sex drive, feelings of inadequacy, irritability and lack of concentration. According to recent surveys, one in six of the UK working population said their job is very stressful, and thirty percent of men said that the demands of their job interfere with their private lives.

Q1 Stress at work is often caused by relationship problems with your partner.

True False Cannot say

Cannot say - This may well be true, but is not stated in the passage so we have to answer Cannot Say. The passage refers only to relationship problems with colleagues and does not say if relationship problems with a partner do or don't cause stress.

Q2 Work-related stress can result in tiredness and a lack of concentration.

True False Cannot say

True -The fifth sentence lists tiredness as one of the physical problems caused by stress, and lack of concentration is listed under emotional problems.

Q3 One in six working men say their job is very stressful.

True False Cannot say

Cannot say - One in six "of the UK working population" said their job is very stressful in the study referred to in the passage. The passage does not tell us the ratio for men only, which may be higher, equal, or lower.

Q4 If you spend more time with your family, you will not suffer from stress.

True False Cannot say

Cannot say - The passage states that stress can be caused by not spending enough time with your family. However, the passage does not tell us explicitly that everyone who spends more time with their family will or will not suffer from stress.

For many years the hunt has been on to find an effective way to treat cancerous tumours using physical rather than chemical means. That hunt may now be over with the latest breakthrough made by Dr Jennifer West at Rice University in Houston, Texas. West has done tests on animals using a non-chemical procedure known as Photothermal Ablation. She injected millions of nanoparticles, which can absorb infrared light, into the animals' bloodstreams. These particles go straight to the tumours because, unlike healthy tissue, tumours have abnormal blood capillaries that will let them through. A few hours later an optical fibre is inserted into the tumour and a blast of infrared light is passed down the fibre, which heats the particles and effectively cooks the tumour.

Q5 Photothermal Ablation is the latest breakthrough in chemical treatment for cancer.

True False Cannot say

False - The passage tells us that Photothermal Ablation is a "non-chemical procedure" which could be used in the treatment of cancerous tumours.

Q6 Nanoparticles are objects whose dimensions are measured in nanometres, or billionths of a metre.

True False Cannot say

Cannot say - The dimensions of nanoparticles are not given in the passage so we have to answer Cannot Say. In fact this is true, but we have to base our answers on only the information contained within the passage, not what knowledge we may have picked up from outside this test.

Q7 Nanoparticles can absorb infrared light.

True False Cannot say

True - The fourth sentence says "nanoparticles, which can absorb infrared light…"

U3b Networks (U3b being short for the underprivileged three billion who lack internet access) is a company in Jersey set up by Greg Wyler, former owner of Rwanda's national telephone company. His company intends to provide cheap, high-speed internet access to remote areas in developing countries, which up to now has been the reserve of developed countries. Mr Wyler plans to charge $500 per megabit per month, compared with the $4,000 charged by existing companies. Mr Wyler has so far raised €40m from investors, but this seems like a risky investment, especially as billions were lost on similar projects in the past. So why are people investing in the hope of finding customers in the world's poorest regions? The reason is that previous projects were over-ambitious and set out to provide global coverage, whereas U3b's project is far more modest in its optimism and its services will be available only to a 100km wide corridor around the equator, which happens to cover most developing countries. It will initially use just five satellites circling 8,000km above the equator and further expansion will be determined by customer appetite.

Q8 Greg Wyler had a background in telecoms.

True False Cannot say

True - The first sentence tells us that Greg Wyler is a former owner of Rwanda's national telephone company, and has now set up U3b Networks.

Q9 The satellites for the project will cost €8m each.

True False Cannot say

Cannot say - There is no information in the passage to tell us the cost of each satellite. We are told that the project will initially use five satellites and that the amount raised so far is €40m, but we don't have enough information to say for sure what each satellite will cost.

Q10 The majority of developing countries lie within 100km of the equator.

True False Cannot say

True - The passage tells us that the "services will be available only to a 100km wide corridor around the equator, which happens to cover most developing countries".

We have all heard about bullying in schools, but bullying in the workplace is a huge problem in the UK which results in nearly 19 million days of lost output per year and costs the country 6 billion pounds annually. Workplace bullying is the abuse of a position of power by one individual over another. Otherwise known as harassment, intimidation, aggression, coercive management and by other euphemisms, bullying in the workplace can take many forms involving gender, race or age. In a nutshell, workplace bullying means behaviour that is humiliating or offensive towards some individual. This kind of bullying ranges from violence to less obvious actions like deliberately ignoring a fellow worker.

Q11 Bullying in the workplace hinders UK economic output.

True False Cannot say

True - The first sentence says that bullying in the workplace "results in nearly 19 million days of lost output per year and costs the country 6 billion pounds annually". This means that economic output of the UK is damaged and therefore it hinders UK economic output.

Q12 Another name for workplace bullying is coercive management.

True False Cannot say

True - The passage states that coercive management is a euphemism for bullying, i.e., a less direct expression to make it sound less severe.

Q13 Bullying in the workplace is sometimes caused by religious intolerance.

True False Cannot say

Cannot say - The passage does identify race as one form of victimization used in bullying but the passage does not tell us explicitly that this intolerance is a cause of bullying. It would be reasonable to guess that workplace bullying could be the outcome of religious or race intolerance, but we cannot be sure of this given just the information in the passage. Hence we must answer Cannot Say. Reinforcing this is the inexact comparison between race and religion.

Q14 Deliberately ignoring a colleague is a form of bullying.

True False Cannot say

True - The last sentence in the passage states that "deliberately ignoring a fellow worker" is a less obvious – but still existing - kind of workplace bullying.

Nobody knows what life forms may exist outside our own planet. The search for extra-terrestrial life in the universe took a step nearer to fruition with the discovery in June of what are believed to be traces of water on the surface of Mars. Life on our planet requires water and its presence on Mars may point towards the existence of past life on the planet. The Phoenix Mars Lander robot landed on the plains of Mars on May 25th 2008, searching for signs that the Martian environment might once have been habitable to life. When it dug a ditch in the planet's surface, photos revealed small patches of bright material. Four days later those patches had disappeared, causing scientists to speculate that they were water ice that had previously been buried and which vaporised when exposed to the air. Scientists insisted that if the patches had been salt, they wouldn't have disappeared and if they had been solid carbon dioxide, then they wouldn't have vaporised.

Q15 The Phoenix Mars Lander has provided proof that life once existed on Mars.

True False Cannot say

Cannot say - The passage states that scientists speculate that there were ice patches on Mars, which is needed for life. We are told about the Phoenix Mars Lander and its discovery but we are not told what the Phoenix Mars Lander has proved, disproved, or failed to prove. For illustration: this passage could be reporting on just one aspect of what Phoenix has discovered. So we cannot say if this is true or false without further information.

Tip: this statement would have been False if the passage had said something to the effect that this is everything the Phoenix Mars Lander has ever done or found.

Q16 Life forms on Mars require water in order to survive.

True False Cannot say

Cannot say - The passage states that "Life on our plant requires water". The passage also says that we do not know about every single life form: "Nobody knows what life forms may exist outside our own planet". Given that the passage does not tell us whether all life on Mars (or any planet other than our own) does or does not require water, we cannot say whether or not this statement is true or false, therefore we have to answer Cannot Say.

Q17 Since the Phoenix Mars Lander cannot excavate it is limited to surface photography.

True False Cannot say

False - The fifth sentence says "When it dug a ditch in the planet's surface…" meaning that the Phoenix Mars Lander is capable of some sort of excavation.

Most workers in the UK over the age of 16 are legally entitled to a minimum rate of pay, called the national minimum wage. An independent body called the Low Pay Commission (LPC) each year reviews this rate and passes their recommendation to the government, who then set and enforce the rate. With few exceptions, the minimum wage is the same for all types of work and all kinds of business. The current amount for people over 22 years of age is £6.80 per hour. The rates for younger workers are less. However, the following groups are not entitled to receive the minimum wage: workers under school leaving age, the genuinely self-employed, some apprentices, au pairs, armed service personnel and voluntary workers. Also agricultural workers have a separate minimum rate of pay set by the Agricultural Wages Board.

Q18 The Low Pay Commission sets the rate of the national minimum wage.

True False Cannot say

False - The second sentence tells us that the Low Pay Commission "passes their recommendation to the government, who then set and enforce the rate". So we are told that the LPC give a recommendation but it is actually the government who set the rate.

Q19 The Agricultural Wages Board sets pay bands for different levels of agricultural workers

True False Cannot say

Cannot say - The last sentence says that "agricultural workers have a separate minimum rate of pay set by the Agricultural Wages Board." So we are told that the AWG set a minimum rate but we are not told if they set rate bands for different levels of workers. Pay bands implies multiple levels of wage rates dependent on factors such as age or experience.

Q20 The lowest wage a 16 year old is entitled to is £6.80 an hour.

True False Cannot say

False - The passage states that this is the rate for people over 22 years of age, and that “the rates for younger workers are less”.

VERBAL REASONING TEST

3

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A common difficulty faced by business managers is when the behaviour of a team-member conflicts with established desirable practice. How does a good leader handle such an issue? One effective angle is to lead by example: instead of waiting for a problem to develop, take a proactive approach in heading it off with reference to clearly laid out guidelines. If a problematic situation does develop, controlling it can be made simpler by invoking existing values from a mission statement which has been set out in advance. A good team will always put the needs of the organisation first.

Taking such an approach gives the team a sense of personal involvement which encourages them to feel part of the organisation's mission, internalising the needs of the group rather than feeling a sense of externally imposed obligation. It provides team members with a greater sense of personal control, the sense that they have contributed individually, and by choice, to the well-being of their organisation.

To achieve this, a manager must have a good understanding of the way individual people communicate – a flexible approach is essential, using real-life practical examples relevant to each team-member's particular experience.

Q1 Leading by example is an effective approach in dealing with problematic behaviour from employees.

True False Cannot say

True – this statement is correct, as the passage says: “when the behaviour of a team-member conflicts with established desirable practice... one effective angle is to lead by example...”

Q2 A manager who understands how people communicate is able to take a flexible approach in dealing with problems.

True False Cannot say

Cannot say – while the passage encourages both effective communication and a flexible approach (“a manager must have a good understanding of the way individual people communicate”, “a flexible approach is essential”) it does not explicitly state that individual communication leads to a flexible approach.

Q3 In a good team, the needs of the organisation are secondary to the needs of the individual.

True False Cannot say

False – while the passage generally stresses the importance of understanding individual styles (“a manager must have a good understanding of the way individual people communicate”, “... relevant to each team-member's particular experience.”) it states explicitly that “A good team will always put the needs of the organisation first.”

An effective PR campaign requires precise, clear communication between the client and PR officer. The client should disclose detailed information to the PR officer, including the company's history, goals, and current business plan. It is especially important to disclose any potentially problematic issues. The company should be prepared to dedicate the necessary time and resources of its senior management, as well as sufficient finances, to the campaign.

The perfect PR message will be consistent, with each new approach reinforcing the key objectives of the company. If new developments do arise, the PR officer should be fully briefed as soon as possible. It is essential to keep to a clear schedule, leaving adequate time available for approval of copy. Seizing opportunities when they arise is key to the success of the campaign.

Q4 The best approach to PR is to be flexible, regularly changing the company's goals to keep the public interested.

True False Cannot say

False – while accepting that changes in approach are sometimes necessary ("If new developments do arise...") the passage states that: "The perfect PR message will be consistent, with each new approach reinforcing the key objectives of the company."

Q5 Not disclosing a full company history to the PR officer will result in a failed campaign.

True False Cannot say

Cannot say – while the passage states that disclosure of company history is important ("The client should disclose detailed information to the PR officer, including the company's history") it is not explicitly stated anywhere that failing to do this will directly and by itself result in the failure of the PR campaign. However, neither is it stated that failure will not result from no disclosure, so any definite answer to this question would rely on inferences which are not directly confirmed by the passage.

Q6 It is recommended to wait before taking advantage of any new opportunities, to make certain they would be of benefit to the campaign.

True False Cannot say

False – The passage states: “Seizing opportunities when they arise is key to the success of the campaign.”

The secret to success in business is entrepreneurial spirit at all levels of the company. Employees who are identified as entrepreneurs in their own right are more motivated – their own financial success becomes integrated with the company's. Those who are oriented towards personal entrepreneurship will work long hours to develop their own tried-and-tested business practices and strategies, contributing as willing partners to the achievements of the company as a whole.

Orientation and value-formation training can induce this kind of thinking in new staff recruits, inculcating the notion of how quickly it is possible to achieve financial security through hard work and innovative business approaches, combined with the impression that to miss out on opportunities for such rapid economic and social advancement would be at best unwise and at worst catastrophic.

Q7 Employees instilled with the idea of personal entrepreneurship will be less willing to contribute to the success of the company as a whole.

True False Cannot say

False – the passage states in fact that such employees will contribute “as willing partners to the achievements of the company.”

Q8 New staff members can be indoctrinated with the virtues of entrepreneurship.

True False Cannot say

True – the passage states that “this kind of thinking” - which refers directly to the personal entrepreneurship approach discussed in the first paragraph – can be induced through “Orientation and value-formation training”.

Q9 Employees encouraged to think of themselves as entrepreneurs work fewer hours than other staff members.

True False Cannot say

Cannot say – while the passage states, “Those who are oriented towards personal entrepreneurship will work long hours”, therefore implying that the answer to this question should be 'false', there is no explicit comparison with other staff in either direction, so no definite answer can be given.

For ambitious employees, a good relationship with their immediate boss is crucial. A bad relationship can lead to missed opportunities for promotion, and even damage professional reputations. A boss who possesses a thorough understanding of the company's future direction and ultimate goals is the person best equipped to help an employee achieve success.

Communication is key. It is important to understand a boss's personal goals and priorities within the company, as well as their individual management approach. Clarifying instructions, anticipating needs, requesting feedback, and accepting criticism gracefully all help to build a solid working relationship.

On the other hand, artificial flattery or excessive deference are tactics unlikely to impress if promotion is the goal – a good employee should demonstrate the potential to be an equally effective boss.

Q10 Employees must reject criticism to build a good working relationship with their boss.

True False Cannot say

False – the passage explicitly states the opposite, that "accepting criticism gracefully [helps to] build a solid working relationship."

Q11 A bad relationship with a boss can lead to missed opportunities, but does not risk an employee's reputation.

True False Cannot say

False – the passage states, "A bad relationship [with an employer] can...damage professional reputations." The statement is therefore incorrect.

Q12 Flattering the boss can be an effective approach for an employee seeking promotion.

True False Cannot say

Cannot say - the passage states "artificial flattery [is] unlikely to impress if promotion is the goal", but makes no comment about the effect of sincere flattery. So that tells us about artificial flattery and that it is unlikely to impress. Regarding flattery in general, the passage does not state that flattery can or cannot be an effective approach for seeking promotion, so we cannot say if this is true or false.

A good salesperson should always learn something about the company, and even the individuals, behind the product he or she is selling. Confidence in a product depends in part on confidence in the integrity, competence, and commitment of those who manufacture and distribute that product. Salespeople should therefore familiarise themselves with the principal personalities behind a company, gaining an understanding of its personnel structure and the functions, duties, and experience of key individuals within the business. It is also useful to know something of the history and development of the company, as well as being aware of its present reputation, and to be familiar with the company's particular practices and policies. As well as providing a more thorough knowledge of the product, this information can help to form the basis of an effective sales pitch.

Q13 Knowledge of a company's reputation is not useful for salespeople.

True False Cannot say

False – in direct contradiction to the statement above, the passage states, “It is also useful to know something of the history and development of the company, as well as being aware of its present reputation.”

Q14 The personal traits and abilities of a company's personnel can influence the confidence people have in their product.

True False Cannot say

True – the passage states, “Confidence in a product depends in part on confidence in the integrity, competence, and commitment [i.e., personal traits and abilities] of those who manufacture and distribute that product.” The statement above is therefore correct.

Q15 It is helpful to have knowledge of the background, policies and reputation of a company when developing an effective sales pitch.

True False Cannot say

True – the passage states that “this information”, i.e., the knowledge of company history and policies described earlier in the paragraph and referred to in the question, “can help to form the basis of an effective sales pitch.”

Well-regulated, ethical practices should always be an area of primary concern for any business. In an environment where multinational conglomerates predominate, owners of small businesses may feel anonymous enough to become flexible about their code of ethics. However, the increasingly inescapable attention of the media allows an unprecedented number of individuals to access news and information with greater speed than ever before – unethical practices can become a matter of public knowledge overnight, with devastating consequences. Codes of ethical practice should apply not only to clients, but to employees, who are just as able to draw inappropriate behaviour on the part of their employers to the public's attention. In today's society, businesses of any size must be able to demonstrate transparency and accountability in their dealings with employees, clients, and the public alike.

Q16 Unethical practices are only a problem if the public becomes aware of them.

True False Cannot say

Cannot say – the passage states that “the increasingly inescapable attention of the media” means that “unethical practices can become a matter of public knowledge overnight, with devastating consequences.” It does not however make any explicit reference to the consequences of unethical practices which do not come to the public attention.

Q17 Employees of a company should be subject to ethical codes of practice.

True False Cannot say

True – The passage states that, “Codes of ethical practice should apply not only to clients, but to employees”.

Q18 More people than ever before have access to information about companies' ethical practices.

True False Cannot say

True – the passage states that the media “allows an unprecedented number of individuals to access news and information” and explicitly confirms that this includes information about companies' ethical practices by adding “unethical practices can become a matter of public knowledge overnight”.

Successful and cost-effective advertising is an important issue to consider when starting up a business. A comprehensive business plan should include details of advertising strategies, a helpful starting point for which is an analysis of the advertising currently being used by competitors in the same line of business.

The rise of the internet has provided a variety of new opportunities for advertising, of which an innovative business should take full advantage. A well-designed website should ideally combine a professional appearance with user-friendly functionality, and be widely promoted to draw as much traffic as possible. This not only increases the visibility of a company, but assures potential clients that the company has a forward-thinking, enterprising outlook, and is willing to embrace as well as exploit the latest technological developments.

Q19 An analysis of competitors' advertisements is helpful in laying out advertising strategies for a new business

True False Cannot say

True – the passage states, “a helpful starting point for [planning advertising strategies] is an analysis of the advertising currently being used by competitors”. The statement is therefore correct.

Q20 A professional and user-friendly website will attract a lot of traffic.

True False Cannot say

Cannot say – the passage states that “A well-designed website” should “combine a professional appearance with user-friendly functionality”, but adds that the site should be “widely promoted to draw as much traffic as possible.” There is no explicit relationship, positive or negative, suggested to exist between the design of the website and the traffic it attracts.

VERBAL REASONING TEST

4

Instructions

This verbal reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with a short comprehension passage followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

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Open-source software should not be confused with freeware, or software that is available to install free of charge. While most open-source software is free, there are many other criteria – namely that the source code must be available to the general public via an open-source license, and that anyone is allowed to modify it. Any modifications made must also be distributed under the same terms as the original software. Proponents of the open-source movement believe this collaborative development methodology results in quicker improvements and software that can be easily adapted to users' needs. Financial savings are another main benefit of open-source software. Because numerous programmers are able to identify and fix problems, advocates believe open-source software is more reliable than proprietary software.

The majority of commercial software protects its source code to prevent competitors from developing a competing product. By only making a compiled, ready-to-run version available, software manufacturers retain full control over their product, which they argue ensures higher levels of quality and security. End-users must purchase a license fee, and typically benefit from a warranty and technical support. Although open-source software does not charge license fees to fund its development, it does not follow that it cannot be commercially viable. Developers charge for installation, training and technical support. Alternatively, licenses for add-ons and additional software may be sold.

Q1 Open-source software is free, and is not released under a license.

True False Cannot say

False – the second sentence states that "most" (not all) open-source software is available free. The same sentence states that open-source software is available to the public via "an open-source license". Any modifications must also be distributed under the same terms as the original software.

Q2 Because it is developed collaboratively, open-source software is of better quality than proprietary software.

True False Cannot say

Cannot say – the passage presents arguments both for and against this. The first paragraph highlights "quicker improvements" and says that open-source software is "more reliable" than proprietary software. However, the second paragraph states controlling the source code ensures "higher levels of quality".

Q3 One claimed advantage of open-source software over licenced software is greater flexibility.

True False Cannot say

True – the first paragraph states that (open-source software) “can be easily adapted to users’ needs.”

Q4 Technical support is not available for open-source software.

True False Cannot say

False – the second paragraph states, “Developers charge for installation, training and technical support.”

Q5 It is prohibited to modify free open-source software and then license it for a fee.

True False Cannot say

True – while it is possible for anyone to modify open-source software, the first paragraph states: “Any modifications made must also be distributed under the same terms as the original software.”

The Ring of Fire is an area of frequent seismic and volcanic activity that encircles the Pacific basin. Approximately 90% of the world's earthquakes occur in this zone, including the largest ever recorded – Chile's 1960 Valdivia earthquake. There are an estimated 452 volcanoes – 75% of the world's total – located in this 40,000 km belt. On its Eastern side, the Ring of Fire stretches along South and Central America up to Canada and Alaska, and includes California's well-known San Andreas fault zone. To the west of the Pacific, it extends from Russia down to Japan, the Philippines, Indonesia and New Zealand. The Ring of Fire finishes in Antarctica, which is home to Mount Erebus, the world's southern-most active volcano.

The volcanic eruptions and earthquakes that characterise the Ring of Fire can be explained by plate tectonics, a unifying geological theory first expounded in the 1960s. The Earth's surface is comprised of tectonic plates that change size and shift over time. Earthquakes are caused when plates that are pushing against each other suddenly slip. Volcanoes occur only when two adjacent plates converge and one plate slides under the other, a process known as subduction. As it is pushed deeper into the Earth, the subducted plate encounters high temperatures and eventually molten rock rises to the surface and erupts.

Q6 Mexico is located along the eastern side of the Ring of Fire.

True False Cannot say

Cannot say – while it is correct that Mexico is part of the Ring of Fire, this is not a fact that is included in the passage and depends on knowledge gained outside of the passage.

Q7 Subduction occurs whenever two tectonic plates move in opposite directions.

True False Cannot say

Cannot say – the passage tells us that subduction is where two adjacent plates converge and one is pushed beneath the other. The passage does not say that this definitely will or will not happen when two plates move in opposite directions (for example other parts of the moving plate may collide with a separate tectonic plate). Since we are not told explicitly if this is the case we have to respond cannot say.

Q8 There are no volcanoes further south than Mount Erebus.

True False Cannot say

Cannot say – while the passage states that Mount Erebus is “the world’s southern-most active volcano” there may be dormant volcanoes further south in Antarctica.

Q9 Molten rock rises during a volcanic eruption.

True False Cannot say

True – the last sentence tells us that “molten rock rises to the surface and erupts” during a volcanic eruption.

Q10 The world’s most severe earthquakes and volcanic eruptions occur within the Ring of Fire.

True False Cannot say

Cannot say – while the majority of the world’s earthquakes (90%) and volcanoes (75%) occur within the Ring of Fire, and the world’s largest earthquake (Valdivia) occurred within the Ring of Fire, the passage does not state whether the most severe volcanic eruption happened within this zone, or if they will in the future.

Humans have hunted whales for thousands of years, but in the 18th and 19th centuries whaling became an important industry, due to high demand for whale oil. Even after industrialisation, whaling carried on at unsustainable levels and by the mid-twentieth century whale populations had severely declined. The International Whaling Commission (IWC) was established in 1946 to ensure the conservation of whales and to oversee the development of the whaling industry.

In 1986, the IWC imposed a moratorium on commercial whaling to prevent the extinction of endangered whale species. As a result of the ban, whale stocks have recovered and thus some countries advocate the lifting of restrictions. Using loopholes in the moratorium, Japan, Norway and Iceland currently engage in commercial whaling and vigorously defend the practice as part of their cultural heritage. Anti-whaling activists, however, oppose whaling on ethical grounds. They argue that whales remain vulnerable, and that whales' intelligence gives them intrinsic value.

So intense is the whaling debate that the IWC, which requires a 75% vote to overturn the ban, has reached a stalemate. Even within nations backing a return to commercial whaling the issue is divisive. Not only has demand for whale meat declined, whale-watching has become a popular tourist activity, and an end to restrictions could threaten this profitable industry.

Q11 The International Whaling Commission is a regulatory organisation covering both commercial and environmental interests.

True False Cannot say

True – the last sentence of the first paragraph states that the IWC was established "to ensure the conservation of whales and to oversee the development of the whaling industry".

Q12 Industrialisation led to reduced demand for whale oil in the twentieth century.

True False Cannot say

Cannot say – this is implied by the phrase "even after industrialisation" but it is important not to let knowledge gained outside of the passage influence your answer. Nowhere does the passage specifically state that industrialisation reduced the demand for whale oil.

Q13 Japan, Norway and Iceland are the only nations in favour of repealing the 1986 whaling moratorium.

True False Cannot say

Cannot say – while the second paragraph states that these nations are currently engaging in whaling, it does not follow that these are the only nations seeking to repeal the ban.

Q14 The whaling ban has resulted in the recovery of all whaling populations.

True False Cannot say

Cannot say – the second paragraph states "as a result of the ban whale stocks have recovered", but later in the paragraph it states that anti-whaling activists argue that "whales remain vulnerable".

Q15 It is arguable that whales are more valuable alive than dead, even in nations where whale meat is eaten.

True False Cannot say

Cannot say – Although the last paragraph cites whale-watching as a lucrative industry, the passage does not specifically state whether it is more or less profitable than Whaling.

The Great Barrier Reef extends over 2,000 km, and has been built by tiny animals called coral polyps. Some of the Great Barrier Reef's coral "skeleton" deposits date over half a million years old. The individual coral polyps that comprise the reef grow very slowly, increasing by only 1-3 cm a year.

A cultural and ecological icon, the Great Barrier Reef has been visited by Aboriginal Australians for over 40,000 years and today attracts over two million tourists annually. Unfortunately the fragility of the reef's ecosystem is now threatened by the effects of climate change on the temperature of the water in which it sits: the Coral Sea. Over the last decade sea pollution caused by farm runoff has caused coral bleaching, thus diminishing the appearance of one of the world's greatest sights. The ecological damage also threatens those endemic creatures that rely upon the Great Barrier Reef for food and/or shelter. Many of these are themselves endangered species.

The Great Barrier Reef is in fact a system of over 3,000 reefs and islands. The northern section of the reef contains deltaic and ribbon reefs. The most common occurrences of fringing and lagoonal reefs are in the southern sections of the reef. In the middle section you are most likely to find cresentic reefs, although this type is also found in the northern reef.

Q16 There has been an aesthetic decline in the Great Barrier Reef.

True False Cannot say

True – the passage states that the appearance of the Reef has diminished from farm runoff.

Q17 The Great Barrier Reef is in the Coral Sea.

True False Cannot say

True – this is apparent from the fact that the passage refers to the "water in which it sits: the Coral Sea".

Q18 Ocean warming is hazardous to coral systems.

True False Cannot say

Cannot say - whilst the passage describes damage to the Great Barrier Reef caused by temperature changes in the Coral Sea, it does not specify that the waters have become warmer i.e. the damage could have been caused by colder sea water. It is important not to rely on outside knowledge when answering questions about a passage.

Q19 The northern section of the Great Barrier Reef only contains three types of reef.

True False Cannot say

Cannot say – the passage says “The northern section of the reef contains deltaic and ribbon reefs” and “In the middle section you are most likely to find cresentic reefs, although this type is also found in the northern reef”. However it does not tell us if these are the only three types or whether there are other types. So we cannot tell how many types of reef the northern section contains.

Q20 Farm runoff can affect sea water temperature.

True False Cannot say

Cannot say – the passage refers to the sea pollution caused by farm runoff, but does not specify that farm runoff has causes the changed temperature of the Coral Sea.

VERBAL REASONING TEST

5

Instructions

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Oil sands are most commonly found in Venezuela's Orinoco Basin and Alberta, Canada. Modern technology has made the extraction of crude bitumen, or unconventional oil, from these oil sands much easier. The crude oil that is extracted from traditional oil wells is a free-flowing mixture of hydrocarbons, whereas oil sands yield a highly viscous form of petroleum. Increasing world demand for oil and higher petrol prices have made the economic viability of extracting oil sands approach that of conventional oil.

Oil sands have been described as one of the dirtiest sources of fuel. Compared to conventional oil, four times the amount of greenhouse gases are generated from the extraction of bitumen from oil sands. Additionally there is an impact on the local environment. Tailing ponds of toxic waste are created whenever the tar sands are washed with water.

Proponents of oil sands development point to the land that has already been reclaimed following oil sands development. Also, that there will be considerably less surface impact once technology innovations have allowed oil sand reserves to be drilled rather than mined.

Q1 Oil sands offer a clean solution for meeting future energy needs.

True False Cannot say

False – the passage emphasises the environmental pollution caused by oil sands development.

Q2 Oil sands are only found in Alberta and the Orinoco Basin.

True False Cannot say

False – they are "most commonly" found in these two areas so must occur elsewhere too.

Q3 Bitumen is a highly viscous form of petroleum that needs to be heated to flow.

True False Cannot say

Cannot Say – the passage states only that bitumen is a highly viscous form of petroleum and nothing about the effects of heating.

Q4 It is almost as profitable to extract conventional oil as oil sands.

True False Cannot say

True - this can be inferred from the last sentence of the first paragraph: “Increasing world demand for oil and higher petrol prices have made the economic viability of extracting oil sands approach that of conventional oil”. So if the economic viability of oil sands is currently approaching the economic viability of conventional oil, it can be said that it is almost as profitable to extract oil sands.

Q5 Extracting bitumen from conventional oil generates four times the level of greenhouse gases than extracting from oil sands.

True False Cannot say

False – the passage states that it is bitumen extraction from oil sands which produces four times the amount of greenhouse gases emitted by extraction of conventional oil (i.e. the other way round).

Chronic Fatigue Syndrome (CFS) is the widespread name for a disorder that is also called Myalgic Encephalomyelitis (ME), but many sufferers object to the name CFS on grounds that it is does not reflect the severity of the illness. While profound fatigue is one symptom of this debilitating condition, there are many others, including muscle pain, headaches, and cognitive difficulties.

Its nomenclature is not the only controversial aspect of CFS. Although an estimated 17 million people worldwide have CFS, its cause is unknown and a diagnostic test does not exist. Doctors must first rule out other conditions that share CFS's symptoms. As there is no cure for CFS, treatment tends to focus on alleviating symptoms, which can range from mild to severe. Despite the World Health Organisation classifying CFS as a neurological disease, there is much disagreement within the medical community. Some scientists believe that CFS originates from a virus, others argue that it stems from genetic predisposition, while still others believe that it is a psychiatric condition.

Because of continuing scepticism about CFS, patients welcomed a 2009 study that linked CFS and a XMRV retrovirus. What at first appeared to be a major scientific breakthrough, however, was disproven by further research – and XMRV is now thought to be a lab contaminant.

Q6 There is a lack of consensus within the medical community about CFS's symptoms.

True False Cannot say

Cannot say – the passage details many aspects of the illness that are controversial, but does not state whether or not the symptoms are debated.

Q7 Many patients believe the name Myalgic Encephalomyelitis trivialises the condition.

True False Cannot say

Cannot Say – the first sentence states "that many sufferers object to the name CFS on grounds that it is does not reflect the severity of the illness." However we are not told if many other patients believe Myalgic Encephalomyletitis trivialises the condition.

Q8 A 2009 study linking CFS with a retrovirus has now been discredited.

True False Cannot say

True – the final sentence states that the link “was disproven by further research.”

Q9 The symptoms of Chronic Fatigue Syndrome are also attributable to other illnesses.

True False Cannot say

True –the second paragraph states that “Doctors must first rule out other conditions that share CFS’s symptoms.”

Q10 CFS is a severely debilitating condition for 17 million people worldwide.

True False Cannot say

Cannot Say – the passage tells us that an “estimated” 17 million people have CFS and the second paragraph states that symptoms can “range from mild to severe.” However we are not told the exact numbers of those who have a severely debilitating form of CFS. So we cannot say for sure.

There is no unifying theory to explain the experience of dreaming. Dreaming involves an altered state of consciousness that occurs during periods of REM (rapid eye movement) sleep. One of the most unusual features of this state is that most of the body's muscles are paralysed.

The most common sleeping pattern is for a period of REM sleep to be preceded by four stages of non-REM sleep, and for this to repeat itself up to five times a night. Most adults and children, if woken during REM sleep, will report that they were dreaming. Whilst the physiological stages of sleeping may be similar across adults and young children, the potential complexity of a child's dreams develops as they age – alongside their imagination.

It's difficult to prove that a dream is taking place – only after the fact can you know that you were dreaming. There are a small number of people, however, who do know when they are experiencing what is called a "lucid" dream. The "scanning hypothesis" posits that eyes move during REM sleep in accordance with the direction of gaze of one's dream. Research, for example with "lucid" dreamers, has shown that eyes do point towards the action that a dreamer, having a goal-orientated dream, describes.

Q11 REM sleep tends to be preceded by non-REM sleep.

True False Cannot say

True – this can be inferred from the information in the second paragraph "the most common sleeping pattern is for a period of REM sleep to be preceded by four stages of non-REM sleep".

Q12 Eye muscles are the only muscles that are not paralysed during REM sleep.

True False Cannot say

Cannot say – most of the body's muscles are paralysed according to the passage. We are told that eye muscles are not paralysed, but we are not told about other muscles.

Q13 REM sleep periods always occur after four non-REM sleep periods.

True False Cannot say

False – the first sentence of the second paragraph describes this as the "most common" sleeping pattern, so this is not necessarily always the case.

Q14 The scanning hypothesis states that the direction of a lucid dreamer's eye movements reveals what the dream is about.

True False Cannot say

False – the scanning hypothesis posits that "eyes move during REM sleep in accordance with the direction of gaze of one's dream". However the eye movements on their own do not reveal the subject of the dream.

Q15 A child's dreams may become more sophisticated as their imagination develops.

True False Cannot say

True – this can be inferred from the last sentence in the second paragraph; "the potential complexity of a child's dreams develops as they age - alongside their imagination."

Ergonomics is the scientific study of the interaction between people and machines. The discipline aims to design equipment and environments that best fit users' physical and psychological needs, thus improving the efficiency, productivity and safety of a person using a device. A multi-disciplinary field, ergonomics encompasses aspects of psychology, physiology, industrial design and mechanical engineering.

The field is divided into three main areas. Physical ergonomics addresses the relationship between human anatomy and physical activity, for instance designing tools that minimize or eliminate muscle strain. This area also looks at how the physical environment affects performance and health. Cognitive ergonomics studies the mental processes involved in humans' interactions with systems, such as computer interfaces. In designing an airplane cockpit, for example, it is of vital importance that control panels take human factors into account. Organisational ergonomics focuses on optimising socio-technical systems, such as team structure and work processes.

Increasingly, progressive organisations are looking for ways to improve workplace ergonomics. The benefit of this strategy is not only increased productivity but also reduced sick leave. In the United States, compensation to workers with repetitive strain injuries costs $20 billion annually.

Q16 The area of physical ergonomics can involve preventing repetitive strain injuries.

True False Cannot say

True – this can be inferred from the passage's statement that "physical ergonomics addresses the relationship between human anatomy and physical activity, for instance designing tools that minimize or eliminate muscle strain."

Q17 One of the objectives of ergonomics is to increase the happiness of a work environment.

True False Cannot say

Cannot say – the passage states that efficiency, productivity and safety are some of the areas of ergonomics however the passage does not tell us explicitly if ergonomics is ever used to increase the happiness of a work environment.

Q18 An ergonomically designed control panel accommodates a person's mental and physical needs.

True False Cannot say

True – the second sentence describes ergonomics as the design of "equipment and environments that best fit users' physical and psychological needs".

Q19 Environmental factors can affect a worker's productivity and wellbeing.

True False Cannot say

True – the second paragraph states that physical ergonomics "looks at how the physical environment affects performance and health."

Q20 Ergonomic design places little emphasis on aesthetics.

True False Cannot say

Cannot Say – the passage does not make any reference to aesthetics.

VERBAL REASONING TEST

6

Instructions

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Q9 Existentialism views mortality as life's sole inevitability.

True False Cannot say

True – "According to existentialists, the only certainty in life is death".

Q10 Existentialism became a popular political movement in the 1960s.

True False Cannot say

False – the first sentence states that existentialism is a "philosophical and literary movement". One might be tempted to answer True based on a quick reading of the last sentence, however the last sentence also states that existentialism was "not a political movement…"

Kangaroo culling is a controversial issue in Australia, where the government has implemented culls to control populations. The issue is particularly emotive because of the kangaroo's status as a national icon, with some detractors viewing the culls as an attack on Australia's identity. Although indigenous to Australia, kangaroos are, in some areas, threatening the grassland ecosystem. Overgrazing causes soil erosion thus threatening the survival of certain rare species of lizard. Furthermore, in overpopulated areas, food scarcity is driving kangaroos to damage wheat crops. Protesters typically oppose the cull on grounds that it is inhumane. Instead, they favour the relocation of kangaroos to suitable new habitats, or sterilizing the animals in overpopulated areas. Sterilization, however, will not have an immediate effect on the problems of limited resources and land degradation through grazing. Not only is transporting large numbers of kangaroos an expensive undertaking, critics believe it would potentially traumatize the relocated kangaroos and ultimately threaten the new habitat.

Q11 The majority of animal rights activists oppose the Australian government's policy of kangaroo culls.

True False Cannot say

Cannot say – the passage does not specify whether most animal rights activists oppose the policy – merely that it is a controversial issue and that protesters oppose the culls as inhumane. In fact, many animal advocacy groups support the culls as being in the long-term interests of the kangaroo.

Q12 The foremost argument against culling kangaroos is that it threatens Australian national identity.

True False Cannot say

False – while the second sentence states that some detractors oppose the culls on these grounds, the sixth sentence says that protestors "typically" oppose the culls on grounds that it is inhumane. The word "typically" suggests that this is the foremost argument.

Q13 Kangaroos present a threat to agriculture as well as to the ecosystem.

True False Cannot say

True – the passage states that kangaroos damage wheat crops.

Q14 In overpopulated areas where food is scarce, kangaroos are preying on rare lizards.

True False Cannot say

Cannot say – whilst the passage tells us that some species of lizards are threatened because kangaroos overgraze, we are not told whether kangaroos prey on lizards.

Q15 Sterilizing kangaroos will not immediately alleviate problems of their over-grazing.

True False Cannot say

True – sterilized kangaroos will not be able to breed, but they will continue to graze. The eighth sentence of the passage tells us that “Sterilization, however, will not have an immediate effect on the problems of limited resources and land degradation through grazing".

Plastics represent the fastest-growing category of waste. Worldwide consumers use 500 billion plastic shopping bags and drink 154 billion litres of bottled water annually. The majority of these bags and bottles are made from polyethylene terepthalate (PET), a plastic derived from crude oil. Because PET takes over 1,000 years to degrade and leaks dangerous chemicals into the soil, many communities have instituted recycling programmes to reduce the amount of plastic destined for landfill. However, recycling plastic is not a perfect solution. Firstly, there are many different types of plastic, and sorting them makes recycling labour-intensive. Secondly, because the quality of plastic degrades with each reuse, recycled plastic has a low value. To reduce costs most of Europe's plastic is shipped to China for recycling processing. The downside to this is that the transportation consumes large amounts of energy and working conditions in the Chinese processing factories are poor. While recycling plastic may salve the conscience of western consumers, reducing plastic proliferation is a better solution.

Q16 It costs less money to recycle plastic in China than it does in European countries.

True False Cannot say

True – the 8th sentence tells us that "to reduce costs" most of Europe's plastic is shipped to China for recycling.

Q17 The passage suggests that finding alternatives to PET is a preferable solution to recycling.

True False Cannot say

False – in the final sentence, the passage suggests that reducing the use of plastic is a preferable solution.

Q18 There are economic drawbacks to recycling plastic.

True False Cannot say

True – The economic drawbacks are that recycled plastic has a low value.

Q19 The proliferation of shopping bags and water bottles has made plastic the fastest-growing category of waste.

True False Cannot say

Cannot say – while the passage cites high usage of shopping bags and water bottles, it does not specify this as the cause for the fast growth of plastic waste.

Q20 Plastic recycling does not extend the life of the material indefinitely.

True False Cannot say

True – the passage states that “the quality of plastic degrades with each re-use” which means that it cannot be used forever.

VERBAL REASONING TEST

7

Instructions

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The merits of single-sex education have long been debated in the United States, where demand for single-sex schools is now on the rise. Title IV, a 1972 law prohibiting sex discrimination in education, was amended in 2006, allowing for the establishment of single-sex state schools so long as a co-educational alternative is available. While critics view single-sex schools as discriminatory and inadequate preparation for adult life, advocates claim that children, and particularly girls, benefit from a single-sex education. Some American research shows that girls attending single-sex schools have higher self-esteem, participate more in class, and score higher on aptitude tests than their counterparts in co-educational schools. A 2005 study claimed that both girls and boys attending single-sex schools spent more time on homework and had less disciplinary problems. Single-sex schools subvert stereotypical course-taking patterns and results. Advocates of single-sex schooling argue that educators can teach more effectively by tailoring their tuition to reflect current research about gender-based brain development. Many experts, however, believe that research into single-sex education is inconclusive, and that so long as the education provided is gender-fair, both girls and boys can thrive in a co-educational environment.

Q1 Girls who attend single-sex schools perform better in maths and sciences than their counterparts in co-educational schools.

True False Cannot Say

Cannot say – while the sixth sentence states that "single-sex schools subvert stereotypical course-taking patterns and results," it is not possible to say – based only on the information in the passage – whether girls perform better in maths and sciences. The passage explains how there are advocates on each side of the argument, but does not say who is right.

Q2 The increased demand for American single-sex state education is a relatively recent phenomenon.

True False Cannot Say

True – The first sentence states that demand is "now on the rise". This is further supported by stating that single-sex state schools were illegal between 1972 and 2006, as explained in the second sentence.

differences between the two genders.

True False Cannot Say

True – the seventh sentence states that educators can tailor their tuition to reflect current research about gender-based brain development.

Q4 Whereas girls benefit academically from single-sex education, the only advantage for boys is improved discipline.

True False Cannot Say

Cannot say – the passage cites a 2005 study which found more time spent on homework and less-stereotyped course taking. However the benefits of single-sex education given in the passage are all opinions; the passage does not give them to us as fact.

Q5 Critics of single-sex education believe that such schools reinforce pre-existing gender stereotypes.

True False Cannot Say

Cannot say – this is not an argument made in the passage.

The United States' space programme is at a critical juncture. Between 1971 and 2011, spending on space has declined from 5% of the federal budget to 0.5%. The US government recently announced it has cancelled its Constellation human spaceflight programme, which was intended to provide transportation to the International Space Station (ISS). Instead, NASA will shift its emphasis to developing new technologies and commercializing space flight. NASA will outsource its transportation to the ISS – a move designed to dramatically reduce launch costs. Five private companies – nearly all of which are headed by internet entrepreneurs – are sharing $50 million of federal funds to develop cargo spacecraft. NASA's new vision has not been met by enthusiasm from all quarters, with critics calling it the death knell of America's former supremacy in space travel. Politicians whose states are losing out on jobs as a result of NASA's cancelled programmes have been among the most vocal critics. With entrepreneurs racing to achieve human spaceflight, the next American to land on the moon could be a commercial passenger rather than a NASA astronaut.

Q6 NASA aims to save money by outsourcing transport to the International Space Station.

True False Cannot Say

True – the fifth sentence states that outsourcing transportation is "designed to dramatically reduce launch costs". So NASA has designed something to save money, which is equivalent to aiming to save money. The passage also states that "Five private companies" will help develop the cargo ship, indicating outsourcing to the private sector.

Q7 Under NASA's new plans, travel to the International Space Station will be privatised.

True False Cannot Say

True – As referred to in the fifth sentence. Handing operation to private companies is privatisation.

Q8 The five companies sharing the federal funds are using internet technology to develop cargo spacecraft.

True False Cannot Say

Cannot say – while these companies are headed by internet entrepreneurs, this fact is not necessarily related to the spacecraft they are developing for NASA.

Q9 Some critics believe that NASA's new direction marks the end of American leadership in space exploration.

True False Cannot Say

True – summarizes the seventh sentence. Death knell means the beginning of the end.

Q10 The United States government recently announced plans to reduce its space programme budget.

True False Cannot Say

Cannot say – the second sentence states that spending has declined over the past 40 years, however it does not say if the government announced this (they could have just done it). Also this does not preclude a one-off cut 39 years ago with a recent small increase. We cannot tell from the passage.

Although according to the EU-funded Psychonaut Research Project it has only been available since 2008, mephedrone is now the fourth most popular recreational drug in the United Kingdom. Also known as “meow meow” and “drone”, mephedrone is a synthetic stimulant that is derived from cathinone compounds found in the khat plant of Eastern Africa. Chemically similar to amphetamines, mephedrone has the effect of euphoria and increased stimulation. Because it is sold as plant fertilizer and thus not subject to medical regulations, mephedrone is currently legal in the United Kingdom, although it has been banned in many other countries, including Sweden, Germany and Israel. Manufactured in China and sold cheaply, the drug’s legality and availability have led to its meteoric rise. While it is not illegal, it does not follow that mephedrone is safe to use – an international lack of scientific research means that its effects on health are not fully known. Following reports of addiction and the drug’s suspected involvement in several deaths; there are calls in the UK to have mephedrone classified as an illegal substance immediately. This legal decision, however, cannot be taken until a government advisory council has fully investigated any scientific evidence.

Q11 Mephedrone is a naturally occurring substance.

True False Cannot Say

False – the second sentence describes mephedrone as a “synthetic” stimulant derived from cathinone compounds found in a type of plant.

Q12 Sweden and Germany have scientifically proven the health dangers of mephedrone.

True False Cannot Say

False – the passage tell us there is an “international lack of scientific research” on the effects on health from the drug. If there is a lack of research it cannot follow that it has been scientifically proven.

Q13 Mephedrone's low cost makes it especially attractive to teenage users.

True False Cannot Say

Cannot say – the passage does not mention the age of mephedrone users, nor the reasons a particular age group use the drug.

Q14 Despite being a legal substance, mephedrone is not safe to use.

True False Cannot Say

Cannot say – the sixth sentence states that "a lack of scientific research means that its effects on health are not fully known".

Q15 The UK government has been criticised for failing to act quickly to criminalise mephedrone.

True False Cannot Say

Cannot say – the penultimate sentence states there are calls to have mephedrone classified as illegal, but the passage does not mention criticism of the government, or the length or their inaction.

Ecotourism can be defined as responsible travel to natural areas that aims to both conserve the environment and bring economic opportunities to local people. Ecotourism provides an alternative to environmentally damaging industries such as logging and mining, while also stimulating the local economy. However, its dependency on foreign investment leads to one of the main criticisms of the industry: that the profits generated from ecotourism do not benefit the local economy and work force. Furthermore, while the ideals behind ecotourism are unobjectionable, the industry is highly susceptible to "greenwashing" – whereby a false impression of environmental friendliness is given. More radical opposition comes from those critics who believe that ecotourism is inherently flawed because travel that uses fossil fuels is damaging to the environment. Despite these voices of dissent, ecotourism has become the fastest-growing sector of the tourism industry, growing at an annual rate of twenty to thirty percent. Ironically, ecotourism's very success may counteract its environmental goals, as high levels of visitors – even careful ones – inevitably damage the ecosystem.

Q16 Ecotourism strives to profit from a nation's natural resources.

True False Cannot Say

Cannot say – whilst the second sentence mentions ecotourism as an alternative to logging and mining, we are not told anywhere in the passage that profit from natural resources is one of its aims.

Q17 Ecotourism's critics believe that air travel contributes to global warming.

True False Cannot Say

Cannot say – the fifth sentence states that critics believe that travel using fossil fuels is damaging to the environment, but it does not say how it is damaging to the environment, for example they could just mean the extraction of natural resources.

Q18 The passage dismisses the ecotourism industry as an example of greenwashing.

True False Cannot Say

False – the fourth sentences merely says that ecotourism is susceptible to greenwashing. The passage does not dismiss ecotourism.

Q19 The long-term environmental credentials of ecotourism are debatable.

True False Cannot Say

True – the last sentence states that high levels of visitors "may counteract its environmental goals" and that all visitors inevitably damage the environment. The passage leaves open the debate.

Q20 While ecotourism's environmental benefits are disputed, there is consensus that it benefits local people economically.

True False Cannot Say

False – while the second sentence states that stimulating the local economy is one of the aims of ecotourism, the third sentence makes clear that critics believe that "the profits generated from ecotourism do not benefit the local economy and work force. If there are critics, there cannot be consensus.

VERBAL REASONING TEST

8

Instructions

This verbal reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with a short comprehension passage followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

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Today, the term surreal is used to denote a curious imaginative effect. The word's provenance can be traced back to the revolutionary surrealism movement which grew out of Dadaism in the mid-1920s. Surrealism spread quite quickly across European arts and literature, particularly in France, between the two world wars. The movement's founder – French poet Andre Breton – was influenced heavily by Freud's theories, as he reacted against reason and logic in order to free the imagination from the unconscious mind. Surrealist works, both visual and oral, juxtaposed seemingly unrelated everyday objects and placed these in dreamlike settings. Thus, the popularity of surrealist paintings, including Salvador Dali's, lies in the unconventional positioning of powerful images such as leaping tigers, melting watches and metronomes. Surrealist art is widely known today, unlike the less easily accessible works of the French surrealist writers who, ignoring the literal meanings of words, focused instead on word associations and implications. That said, the literary surrealist tradition still survives in modern-day proponents of experimental writing.

Q1 Salvador Dali's work is more popular than Andre Breton's output.

True False Cannot say

True - This can be inferred from the passage. Breton was a French surrealist poet and the surrealist's written work is described as "less easily accessible", compared to the "popularity" of Dali's paintings.

Q2 Some experimental writing is surreal.

True False Cannot say

True - Some of the surrealists from whose work the word is derived practiced experimental writing.

Q3 Surrealist painting is renowned for the arbitrary portrayal of everyday objects.

True False Cannot say

True - As the sixth sentence of the passage describes.

Q4 Salvador Dali was a French surrealist painter.

True False Cannot say

Cannot say - The passage mentions Dali, as well as emphasising the movement's French focus, but does not link the two together. In fact Dali was Spanish.

Q5 At one time Dadaism and Surrealism were closely affiliated.

True False Cannot say

True - The passage notes that Surrealism "grew out of Dadaism.

Huge controversy surrounded the construction between 1994 and 2006 of what was the world's largest hydroelectric dam, the Three Gorges Dam. Spanning China's 1.4-mile wide Yangtze River in the Hubei province with twenty-six state-of-the-art turbines, the dam has been heralded by the Chinese state as a symbol of China's modernisation and engineering prowess. It supports China's economic development by supplying over ten percent of its electricity. However, over 1.3 million people were deliberately displaced as part of the Gorges flooding project that created the dam's 660km-long reservoir. Hundreds of archaeological sites, initially above and below ground level, were lost under the reservoir's water. Questions remain as to whether the dam – as a source of renewable energy – benefits the surrounding environment, or depletes it by causing, for example, landslides and the death of fish species in the Yangtze.

Supporters argue that the Dam's deepening of the river has made the Yangtze easier for large ships to navigate and has reduced the risk of flooding downstream. As the only other viable Chinese energy source continues to be non-renewable coal power, the hydroelectric power generated by the dam may be the lesser of two evils.

Q6 The passage suggests that energy supplies are critical to economic development.

True False Cannot say

False - We are told in the third sentence that electricity from the dam "supports China's economic development" but we are not told whether electricity is critical to its economic development. Note the statement is "the passage suggests…" so we must respond False, instead of Cannot Say.

Q7 The Three Gorges Dam is China's largest and most controversial dam

True False Cannot say

Cannot say - Certainly it once was the largest in the world according to the first sentence, however the sentence is written in the past tense.

Q8 The environmental impacts of the Three Gorges Dam have been more positive than negative

True False Cannot say

Cannot say - The passage lists both the positive and negative environmental impacts and argues for both sides, concluding “the dam may be the lesser of two evils”.

Q9 The 660km length of the Three Gorges Dam spans the Yangtze River

True False Cannot say

False - The passage states that it is the dam’s reservoir that is 660km long.

Q10 The Dam’s monetary benefits were prioritised over environmental damage.

True False Cannot say

Cannot say - The passage tells us that the dam “It supports China’s economic development” and that there were negative environmental consequences, but it would be an assumption to say that the priorities were this way round. For example there may have been long-term environmental benefits, or there may have been other environmental benefits which are not talked about in the passage.

Outsourcing – purchasing services from an external supplier rather than performing the work internally – is a popular but politically sensitive means of cutting costs. There has been an increasing use of third parties for HR functions, such as managing payroll and other employee data, and for traditional Finance functions, such as invoice services. The manufacture of goods has even become part of this trend; though the design function is typically kept in-house. Third party call centre operatives can offer customer service expertise that may be more expensive to provide in-house. “Offshoring”, when functions are moved abroad, often to India or China, where the average wage is considerably lower raises job protection issues. The potential profits from outsourcing operations encourage underdeveloped countries to invest in the necessary educational infrastructure and skills training that are required to support such business. Still, higher corporate profits may be seen to be at the expense of low-wage economies, and the cost benefits are not always passed on to the consumer. Additionally the consumer may not benefit from an improved quality of customer service. Outsourcing decreases prices in another way – the competitive marketplace in which service providers companies operate gets squeezed as they vie for client contracts.

Q11 Offshoring is synonymous with outsourcing.

True False Cannot say

False - The passage gives offshoring as an example of a particular type of outsourcing, but the two are not the same thing.

Q12 Low wage countries may need to enhance their infrastructure to attract outsourcing contracts.

True False Cannot say

True - This can be inferred from the statement “encourage underdeveloped countries to invest in the necessary educational infrastructure... required to support such business”.

Q13 Outsourcing providers compete aggressively for client contracts.

True False Cannot say

True - This can be inferred from the last sentence.

Q14 The outsourcing trend has led to a reduction in the cost of consumer goods.

True False Cannot say

Cannot say - The passage states that “cost benefits are not always passed on to the consumer”. The passage does not say explicitly though whether this has led to a reduction in the cost of consumer goods.

Q15 Outsourcing refers to the use of a third party supplier to provide either HR or Finance functions.

True False Cannot say

False - The passage also mentions the outsourcing of manufacturing capability

Hydrogen-fuelled cars are not reliant upon petrol or diesel, which potentially makes them safer. Hydrogen fuel can be produced from renewable sources, such as wind or solar power, and does not have the ordinary car's dependency on burning fossil fuels. Since cars account for roughly a third of greenhouse gas emissions, these futuristic vehicles could form part of an effective strategy to combat global warming. This is an idealistic scenario and there are many barriers to be overcome first. The existing designs for hydrogen fuelled cars are extremely expensive. The National Research Association also estimates that £8 billion would be needed to set-up the refuelling stations required by hydrogen-fuelled cars. For a mass market product to be developed there needs to be increased cooperation between governments and industry to allow the infrastructure to lead the manufacture. In fact, hybrid and hybrid-electric car designs may prove to be a more worthwhile long-term investment for governments. Compared to ordinary cars, hybrids emit reduced levels of carbon dioxide, whereas hydrogen-fuelled cars emit only water and so are 100% clean.

Q16 The first hydrogen-fuelled car was too expensive for consumers

True False Cannot say

Cannot say - The passage states that existing designs are extremely expensive but does not refer to a retail price for the first hydrogen fuelled car.

Q17 The passage questions the viability of hydrogen-fuelled cars as a solution to global warming.

True False Cannot say

True - The passage states that "this is an idealistic scenario" and that they "could form part of an effective strategy to combat global warming".

Q18 Widespread use of hydrogen-fuelled cars would incur High infrastructure costs.

True False Cannot say

True - The passage states that "The existing designs for hydrogen fuelled cars are extremely expensive "and refers to an £8 billion estimate of what "would be needed to set-up the refuelling stations required by hydrogen-fuelled cars".

Q19 Hybrids are the cleanest form of transport.

True False Cannot say

False - The passage compares hydrogen-fuelled cars more favourably than hybrids which emit some carbon dioxide.

Q20 Hydrogen is universally available and is not a greenhouse gas.

True False Cannot say

Cannot say - These facts are not presented in the passage.

VERBAL REASONING TEST

9

Instructions

This verbal reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

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As their name suggests, Asian carp are not indigenous to the United States, yet these invasive fish have become the subject of a Supreme Court lawsuit. Introduced in the US in 1831, carp were originally intended for consumption although today they are not widely eaten. Populations have flourished in the Mississippi and Illinois Rivers since the 1970s, when it is thought that they escaped from Midwestern fish farms during heavy flooding. Carp consume only plankton, although vast amounts of it, and some species of Asian carp can grow to over one hundred pounds. Not only are the fish a hazard to recreational boaters, they also compete with native species for food and space. Environmentalists fear that carp will infiltrate the Great Lakes, via locks connecting the Mississippi to Lake Michigan, where they would damage the ecosystem. They also fear that by crowding out species such as salmon, Asian carp would also be detrimental to the Great Lakes' sports fishing industry. The US government currently spends $80 million per annum on Asian carp control, using methods such as toxins and underwater electric barriers designed to repel carp. Evidence of carp in Lake Michigan however has led anticarp activists to call for stronger measures, such as blocking off the locks on the Chicago canal. Business interests strongly oppose the closure of this major shipping lane for economic reasons, also arguing that forcing canal traffic onto the roads will cause pollution.

Q1 Anticarp activists have demanded more drastic measures of carp control in the US Supreme Court.

True False Cannot say

Cannot say – while the first sentence mentions that carp are the subject of a Supreme Court lawsuit, it does not specify the exact nature of the debate.

Q2 Heavy flooding in the 1970s resulted in Asian carp proliferating in the Mississippi and Illinois Rivers.

True False Cannot say

Cannot say – the third sentence says "it is thought". This is not a proven fact.

Q3 If allowed into the Great Lakes, Asian carp would prey on native salmon.

True False Cannot say

False – the fourth sentence states that carp “consume only plankton” so they would not prey on native salmon. Competing with the salmon’s food supply is different to preying on them.

Q4 Electric barriers are not a fully effective means of carp control.

True False Cannot say

Cannot say –the passage tells us the US government use “electric barriers designed to repel carp” but it is impossible to say from the information given in the passage whether the carp evidence in Lake Michigan is due to the fish bypassing the electric barriers.

Q5 Anticarp activists are motivated by environmental concerns rather than business interests.

True False Cannot say

False – the passage states that “They also fear that by crowding out species such as salmon, Asian carp would also be detrimental to the Great Lakes’ sports fishing industry”.

The most prevalent neurological condition in the developed world, migraine is characterised by severe, recurrent headaches, with additional symptoms including nausea and sensitivity to light and sound. The frequency and duration of migraine attacks are variable: attacks may occur a few times a year or several times per month, while pain may last between four hours and three days. Approximately one third of sufferers experience an aura – a perceptual disturbance occurring before the migraine's onset. There are numerous theories on the cause of migraines. The vascular theory posits that migraines are caused by problems with blood vessels in the brain. A more widely held view is that migraines result from low levels of the neurotransmitter serotonin in the brain. Prophylactic drug treatment, which prevents the onset of migraines, has declined in recent years, because of side effects and also improvements in medications treating an actual attack. Whereas older varieties of pain medication are potentially addictive, newer drugs called triptans work by reducing pain information travelling to the brain. Treatment plans typically include avoidance of known migraine triggers, such as diet, alcohol, and stress, as overuse of medication can lead to chronic "rebound headaches." Not only do migraines have a debilitating effect on sufferers, they are also bad for the economy, with an estimated 25 million days lost from work every year in the UK alone.

Q6 One third of migraines are preceded by a heightened sensitivity to light.

True False Cannot say

Cannot Say – the third sentence says that one third of migraines are preceded by an aura, which is not defined as a heightened sensitivity to light. However the passage does not tells us anything about a possible other third of sufferers who may or may not experience before their migraine a heightened sensitivity to light.

Q7 The passage states that it is not possible to work when suffering from a migraine.

True False Cannot say

False – while the last sentence states that 25 million work days are lost due to migraines, it does not say that it is impossible to work.

Q8 Although the cause of migraines is unknown, serotonin deficiency is the most commonly held theory.

True False Cannot say

Cannot say – it is more widely held than the vascular theory, but the passage does not compare it to every theory. So we cannot say if it is the most commonly held theory.

Q9 Triptans are a new form of prophylactic drug which are less addictive than older medications.

True False Cannot say

False – triptans are not prophylactic drugs; they reduce pain rather than prevent headaches. The passage tells us that prophylactic drugs prevent the onset of migraines as opposed to triptans which target the pain signals to the brain.

Q10 The vascular theory has been discredited.

True False Cannot say

Cannot say – it is not the most widely held view, but it does not necessarily follow that it has been discredited.

Is free internet access as much a universal human right as access to clean water and healthcare? Many leading experts believe that the 80% of the world's population that is not connected to the web should have access to information through free low-bandwidth connection via mobile phones. The one fifth of the world connected to the internet, however, faces a very different problem: an insatiable appetite for bandwidth that outstrips availability. Bandwidth refers to the capacity to transfer data through a channel. Emails, for example, require less bandwidth than video. Information traffic jams result when too many users try to move information at the same time, exceeding the channel's capacity. The popularity of mobile web devices means demand for wireless channels is growing rapidly, but bandwidth supply is limited – resulting in high charges for use. With bandwidth controlled by a handful of private suppliers, bandwidth is the subject of government debate in many countries, including the United States. Bandwidth suppliers are in favour of introducing tiered pricing structures, whereby customers paying higher rates would receive faster service. Critics believe that a tiered system violates the principle of net neutrality – whereby all data is treated as equal – and would allow suppliers to profiteer from controlling a scarce resource. Suppliers argue that they are funding huge infrastructure updates – such as switching from copper wires to expensive fiberoptics – in order to improve services.

Q11 The main argument in the passage is that internet users are not leaving enough bandwidth for 80% of the world's population.

True False Cannot say

False – the passage raises two separate problems – lack of internet connection for 80% of the world and bandwidth shortage for internet users – but there is no causal relationship between the two problems.

Q12 Access to information via the internet is a basic human right.

True False Cannot say

Cannot say – the first two sentences raise this question, but do not provide an objective answer.

Q13 The growth of mobile net device use has contributed towards the pressure on bandwidth availability.

True False Cannot say

True – as stated in the 7th sentence.

Q14 Proposed tiered pricing structures would charge users more for using mobile web devices.

True False Cannot say

Cannot say – while the 7th sentence states that mobile web devices are subject to high charges, the tiered pricing structures described in the 9th sentence does not mention costs for mobile web devices, merely a cost associated with a faster service.

Q15 Proponents of net neutrality are against the prioritising of certain web traffic.

True False Cannot say

True – as explained in the 9th and 10th sentences.

The Dead Sea Scrolls are probably the most significant archaeological discovery of the twentieth century. More than 800 ancient documents, written on papyrus and parchment, were found in 1947 in desert caves at Qumran, near the Dead Sea. The texts mainly date from between the last century BCE and the first century CE and are comprised of three types of document: copies of books from the Hebrew Bible; apocryphal manuscripts; and documents pertaining to the beliefs and practices of a sectarian community. The former category is arguably of the greatest academic significance, as documents such as a complete copy of the Book of Isaiah enabled historians to analyse the accuracy of Bible translations. However, the secrecy of the scholars appointed by the Israeli Antiquities Authority, and their slow rate of publication, were the subject of international controversy. In 1991, the Huntington Library made photographic images of the full set of scrolls finally available to all researchers. While the scrolls' importance is indisputable, there is no consensus over the texts' origins. The traditional view is that the scrolls belonged to an ascetic Jewish sect, widely believed to be the Essenes. The Essenes' rules and doctrines are even seen by some scholars as a precursor to Christianity. A competing theory holds that the documents are sacred texts belonging to various Jewish communities, hidden in the caves for safekeeping around 68CE, during the unsuccessful Jewish Revolt against the Romans in Jerusalem.

Q16 The traditional interpretation of the Dead Sea Scrolls is that they belonged to an early Christian sect called the Essenes.

True False Cannot say

False – the Essenes are described as an "ascetic Jewish sect". They may have been a precursor to Christianity but they themselves were an ascetic Jewish sect.

Q17 Academics debate whether the scrolls are the detailed accounts of one particular sect, or provide historical information about the wider Jewish people.

True False Cannot say

True – summarises the difference between the two main theories on the Dead Sea Scrolls, as described in the final three sentences.

Q18 Not only the origins of the Dead Sea Scrolls, but also the process of their interpretation, have been disputed.

True False Cannot say

True – the fifth and sixth sentences describe controversy over the scholars' work, while the 8th, 9th, and 10th sentences describe debate over the scrolls' origins.

Q19 Some scholars believe the Essenes inhabited the desert caves at Qumran, near the Dead Sea.

True False Cannot say

Cannot say – while one theory states that the scrolls are thought to be Essene in origin, it does not necessarily follow that the Essenes lived in the caves.

Q20 The Dead Sea Scrolls include the oldest known copy of the Book of Isaiah.

True False Cannot say

Cannot say – while the Dead Sea Scrolls do include a copy of the Book of Isaiah and the 4th sentence suggests that the Bible books are the oldest known copies, this is not expressly stated.

VERBAL REASONING TEST

10

Instructions

This verbal reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

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Founded in 1954, the Bilderberg Group holds an annual conference of 120 of the world's most powerful and influential people. Participants from 18 different countries, invited by a steering committee comprised of two people, typically include financiers, industrialists, politicians, royalty and newspaper editors. Past delegates have included Tony Blair and Bill Clinton, shortly before becoming heads of state. Reporters, however, are not invited: the Bilderberg Group's meetings are conducted in privacy, with strict confidentiality rules to foster open discussion. The Group was established to promote understanding and cooperation between the United States and Europe and to create an informal network for the global elite. No votes are taken at the conference and no policies are agreed. However, the secrecy surrounding the conferences has given rise to numerous conspiracy theories. Right-wing critics believe that the Bilderberg Group is a shadowy global government, with some conspiracy theorists holding the Group responsible for organising events including the overthrow of Margaret Thatcher, the Bosnian War and the invasion of Iraq. Left-wing activists, who call for greater transparency, accuse the Group of being an unelected capitalist cabal controlling world finance. While opponents view the Group as undemocratic, supporters argue that modern democracies depend on cooperation between banking and politics, and that organisations such as the Bilderberg Group help ensure their success.

Q1 The Bilderberg Group has critics on both sides of the ideological spectrum.

True False Cannot say

True – summarises the 8th and 9th sentences. Right-wing critics being one side and left-wing activists being the other.

Q2 Representatives from the media are not allowed to attend the Bilderberg Group conference.

True False Cannot say

False – while the fourth sentence states that "reporters, however, are not invited" the second sentence states that conference participants include "newspaper editors".

Q3 The Bilderberg Group was created as a private forum to set Europe and America's political and financial agenda.

True False Cannot say

False – while many conspiracy theories promote this idea, the fifth and sixth sentences state that the Group was established to promote understanding and does not set policy.

Q4 Topics discussed at Bilderberg Group conferences have included the invasion of Iraq.

True False Cannot say

Cannot say – as the conferences are private, there is no way of knowing what was discussed.

Q5 Because its delegates are not elected, the Bilderberg Group's activities are widely believed to be undemocratic.

True False Cannot say

Cannot say – both sides of the argument are argued in the last sentence. We are not told either way if this view is "widely believed".

Although today used to describe any movement to claim back territory for ethnic, linguistic, geographical or historical reasons, the term irredentism originally came from the Italian nationalist movement Italia irredenta. Meaning “unredeemed Italy”, Italian irredentism was an opinion movement rather than a formal organisation. It sought to unify ethnically Italian territories, such as Trieste, Trentina, and Istria, that were outside of Italian borders at the time of the unification of Italy in 1866. The annexation of these Italian territories from Austria provided Italy with its strongest motive for participating in World War I. The Treaty of Versailles in 1919 satisfied most of Italy’s irredentist claims, however new borders delineated by the treaty gave rise to new irredentist claims. Dividing the German Empire into separate nations created German minority populations in the new countries of Poland and Hungary. German irredentist claims to these territories, as well as to Austria, resulted in the Second World War. The Treaty of Versailles created Yugoslavia to be a Slavic homeland, but ethnic and religious differences between Bosnians, Serbs and Croats eventually led to war in the 1990s. The artificial political states created by the Treaty of Versailles in East Africa failed to take tribal boundaries into account, and thus remain subject to irredentist claims. Similarly, borders drawn up in the Near East are still contentious today.

Q6 Trieste, Trentina and Istria were reunified with Italy following the Treaty of Versailles.

True False Cannot say

Cannot say – while the third sentence lists these areas as Italian territories, and the fifth sentence states that the Treaty of Versailles “satisfied most of Italy’s irredentist claims” the passage does not expressly state that these territories became part of Italy.

Q7 Borders imposed in 1919 by the Treaty of Versailles resulted in twentieth century conflicts.

True False Cannot say

True – both World War II and the Bosnian War were the result of irredentist claims over borders.

Q8 Irredentist movements advocate the annexation of territories only on the grounds of prior historical possession.

True False Cannot say

False – there are a variety of reasons given in the first sentence.

Q9 Yugoslavia was created following the Second World War to provide a homeland for Bosnians, Serbs and Croats.

True False Cannot say

False – Yugoslavia was created after the First World War. All the examples in the second half of the passage pertain to the Treaty of Versailles.

Q10 Although originally an Italian movement, irredentist claims are now being made in other countries.

True False Cannot say

True – the last two sentences mention irredentist claims in East Africa and the Near East.

Many organisations predict that the global water crisis presents this century's biggest threat. Today 84% of people in developing countries have access to clean water, 2 billion more than in 1990. However, millions still lack clean water for drinking and sanitation, posing a major health threat. In the developed world, water consumption is unsustainably high, doubling every twenty years. Agriculture accounts for 70% of the world's fresh water use, and an increasing population to feed means this demand will only increase. Groundwater sources, used to irrigate crops, are running dry because of overuse. While limiting the use of groundwater is a possible solution, it would have a financial impact on farmers and result in lower yields. While climate change has resulted in increased precipitation in some areas, it is contributing to water shortages in other regions. Rising temperatures have caused the Himalayan glaciers, the source for all of Asia's major rivers, to retreat. A reservoir for nearly half of the world's fresh water, these glaciers are predicted to lose four-fifths of their area by 2040. The solution to the global water crisis lies predominantly in new technologies. Desalination plants, which convert seawater into fresh water, have now been built in countries including Israel and Singapore. The process's high costs however limit its widespread adoption. Organising bodies and treaties are also needed to ensure that cross-border water sources are managed properly and do not become a source of conflict.

Q11 The global water crisis has resulted in less of the world's population having access to fresh water

True False Cannot say

Cannot say – the second sentence tells us that more people in developing countries have access to clean water than before (2 billion more than in 1990), however we are not told if more or fewer people in developed countries have access to fresh water. So we are not given the whole picture and therefore we cannot say.

Q12 The irrigation of crops comprises the majority of groundwater usage.

True False Cannot say

Cannot Say – the passage states that 70% of the world's freshwater use is for agriculture and that groundwater is used to irrigate crops. It does not follow that 70% of groundwater is used for farming.

Q13 Despite increasing rainfall in some areas, climate change is the main cause of the global water crisis.

True False Cannot say

Cannot say – the passage does not cite a primary cause for the crisis.

Q14 The main impediment to desalination is expense.

True False Cannot say

Cannot Say – the passage states that "The process's high costs however limit its wide-spread adoption". However it does not follow that this is the main impediment.

Q15 Both technological innovation and diplomacy are needed to tackle the world's water crisis.

True False Cannot say

True – the 11th sentence says "The solution to the global water crisis lies predominantly in new technologies". The last sentence goes on to say that "Organising bodies and treaties are also needed…". So we are told that both technology and diplomacy (organising bodies and treaties) are needed.

Esperanto is an artificial language constructed in 1887 by the eye specialist Dr Ludovic Zamenhof. Having experienced ethnic divisions and language barriers growing up in Poland, he aimed to create an easy-to-learn second language that could transcend cultural and political differences and further international peace. Although Zamenhof's goal of a universal auxiliary language was not realized, today there are 1.6 million Esperanto speakers in more than 90 different countries. Using an alphabet comprised of five vowels and 23 consonants, Esperanto is based on Indo-European languages. Its grammar has logical rules with no irregular verbs, and its spellings are phonetic, making Esperanto about five times easier for a native English speaker to learn than French or Spanish. While some Esperanto speakers still advocate the adoption of the language worldwide, other proponents see its value primarily as a language-teaching tool. Esperanto is on the curriculum in countries including China and Hungary, but it is not taught in British schools because it lacks an associated culture. Its lack of culture is a common criticism levied at Esperanto, yet its neutrality was intended to foster equality between speakers. Detractors also argue that Esperanto's linguistic roots give an unfair advantage to speakers of European languages. The newer constructed language Loglan is based on logic and uses the world's six most widely spoken languages – Arabic, Mandarin, English, Hindi, Russian and Spanish – as its vocabulary's source.

Q16 One of the advantages of Esperanto is that it is universally easy to learn.

True False Cannot say

Cannot say – because it is based on European languages it is indeed easier for speakers of European languages to learn Esperanto, however we are not told if others find it "easy" or not.

Q17 Dr Zamenhof's goal was to replace ethnic languages with the universal language of Esperanto.

True False Cannot say

False – the third sentence refers to Zamenhof's goal of an "international auxiliary language" – he did not aim to replace ethnic languages.

Q18 Esperanto's lack of an associated culture or homeland can be viewed as both an asset and a disadvantage.

True False Cannot say

True – as stated in the 8th sentence.

Q19 Contemporary Esperanto speakers do not share a common vision of the language's purpose.

True False Cannot say

True – the sixth sentence describes two different visions for Esperanto.

Q20 Loglan is a more logically constructed language than Esperanto.

True False Cannot say

Cannot say – while the last sentence states that Loglan is based on logic, the fifth sentence describes Esperanto's grammar as having "logical rules" and the two languages are not directly compared. We cannot say which of the two are the most logically constructed.

NUMERICAL REASONING TEST 1

Instructions

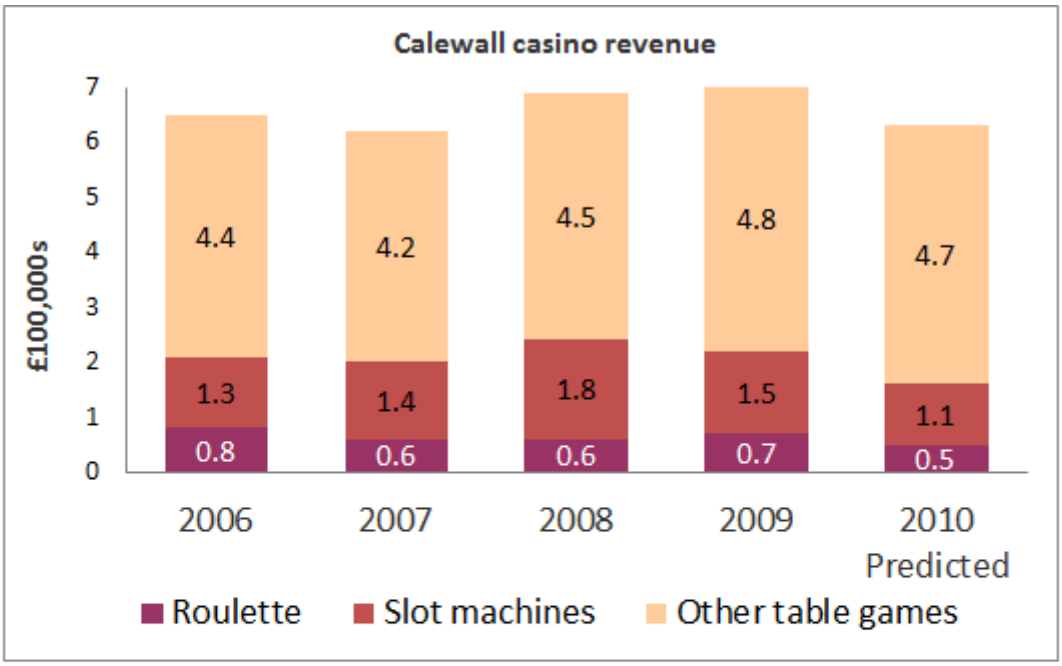
This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**



Calewall casino	Year	Annual attendance (100,000s)
	2006	14.6
	2007	15.2
	2008	16.3
	2009	16.8
	2010 Predicted	16.5

All data is non-cumulative

Q1 How much did the combined revenue from Slot machines and Roulette differ from that of Other table games between 2006-2009 inclusive (in £millions)?

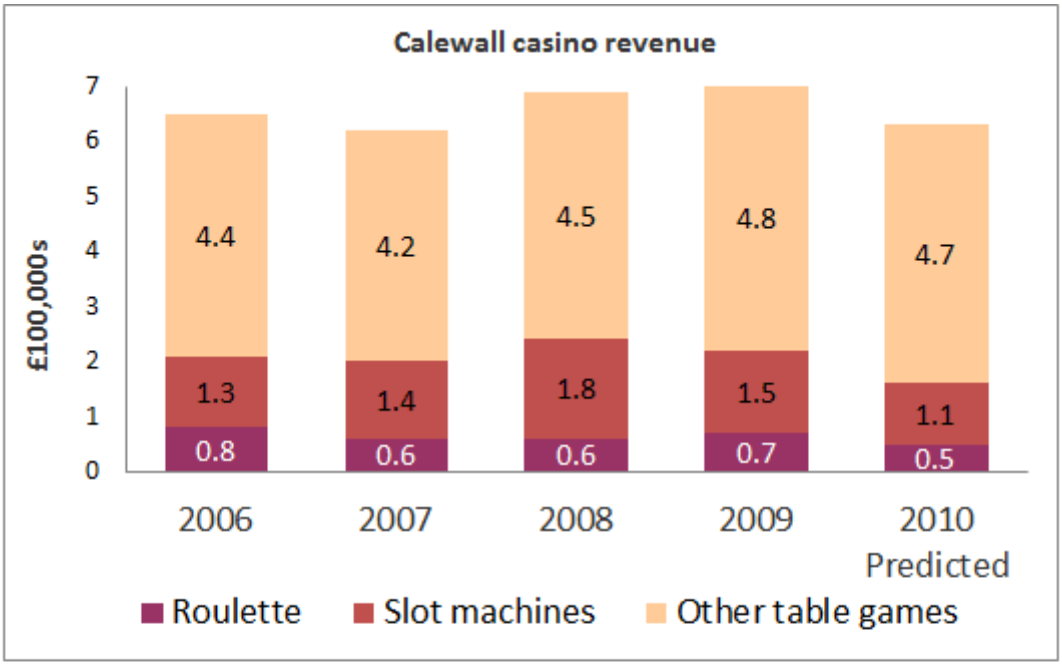
(A) 0.9
(B) 9.0
(C) 9.2
(D) 0.92
(E) None of these

Step 1 *– Calculate the totals for Slot machines, Roulette, Other table games*
Slot machines = 1.3 + 1.4 + 1.8 + 1.5 = 6
Roulette = 0.8 + 0.6 + 0.6 + 0.7 = 2.7
Other table games = 4.4 + 4.2 + 4.5 + 4.8 = 17.9

Step 2 *– Calculate the difference*
17.9 – 6 – 2.7 = 9.2

Step 3 *– Put into £millions = 0.92*

Thus the correct answer is (D) 0.92



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	2006	14.6
	2007	15.2
	2008	16.3
	2009	16.8
	2010 Predicted	16.5

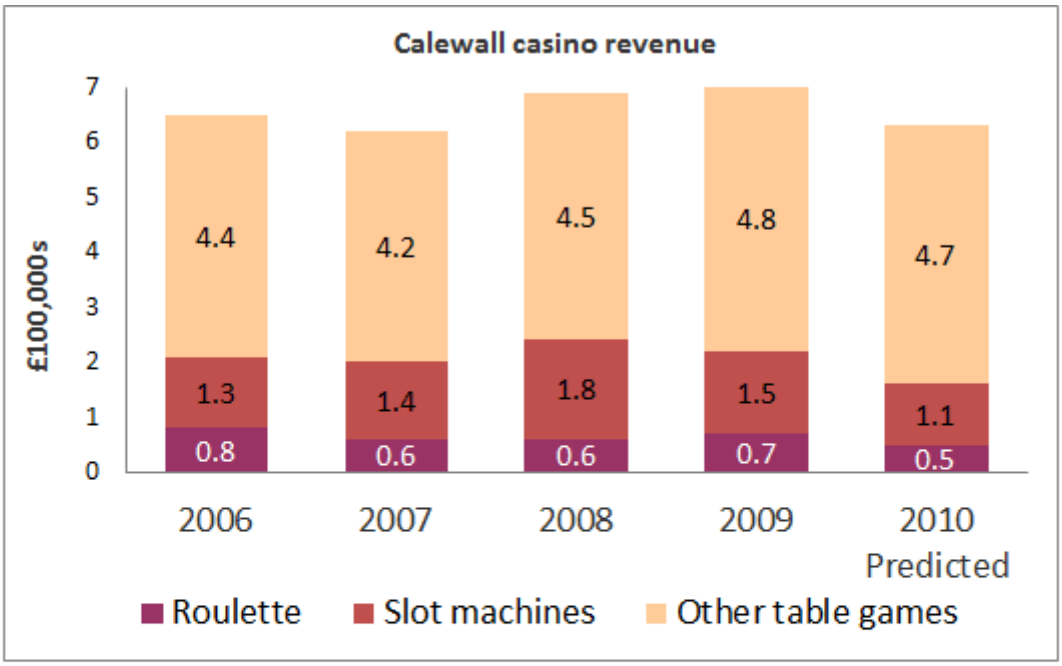
All data is non-cumulative

Q2 What was the average amount gambled on Slot machines in 2007 by each individual who attended Calewall casino?

(A) £90.00
(B) £9.00
(C) £0.90
(D) £900.00
(E) £0.09

Step 1 *- Amount gambled/No of people = 140,000 / 1,520,000 = £0.09*

Thus the correct answer is (E) £0.09



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	2007	15.2
	2008	16.3
	2009	16.8
	2010 Predicted	16.5

All data is non-cumulative

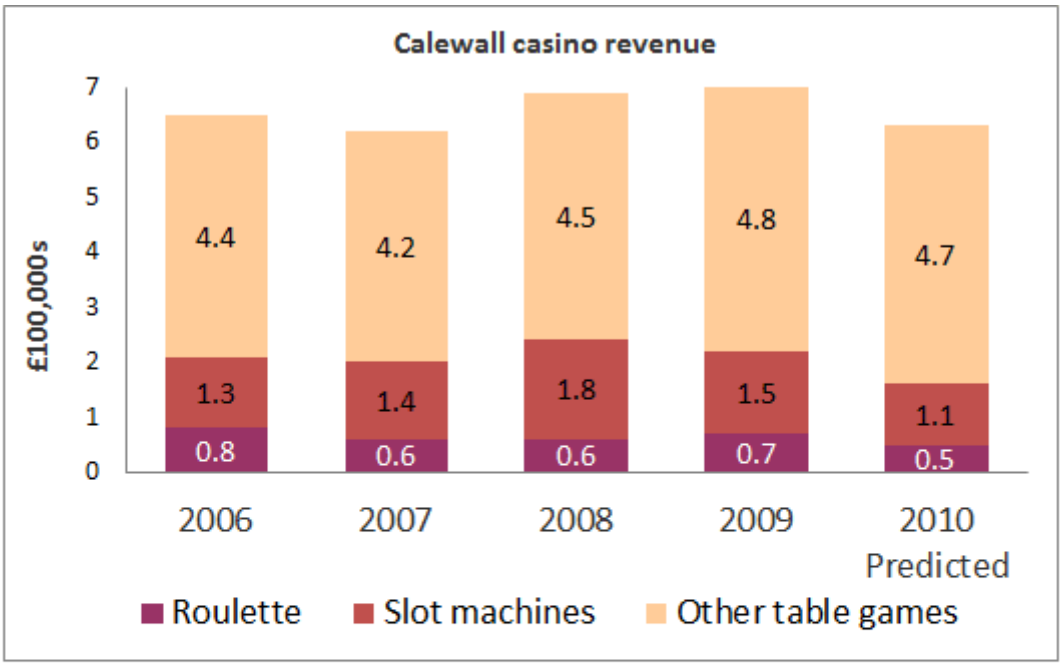
Q3 There is a £15 entrance fee for each person gambling at Calewall casino. In which year, or years, was the entrance fee revenue less than £23 million?

(A) 2006, 2007
(B) 2007, 2008
(C) 2007
(D) 2006
(E) None of these

Step 1 *- Calculate the entrance fee revenue for each year, as follows:*

	Attendances	*Entrance fee revenue*
2006	*1,460,000*	*x 15 = £21,900,000*
2007	*1,520,000*	*x 15 = £22,800,000*
2008	*1,630,000*	*x 15 = £24,450,000*
2009	*1,680,000*	*x 15 = £25,200,000*

Thus the correct answer is (A) 2006, 2007



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	2008	16.3
	2009	16.8
	2010 Predicted	16.5

All data is non-cumulative

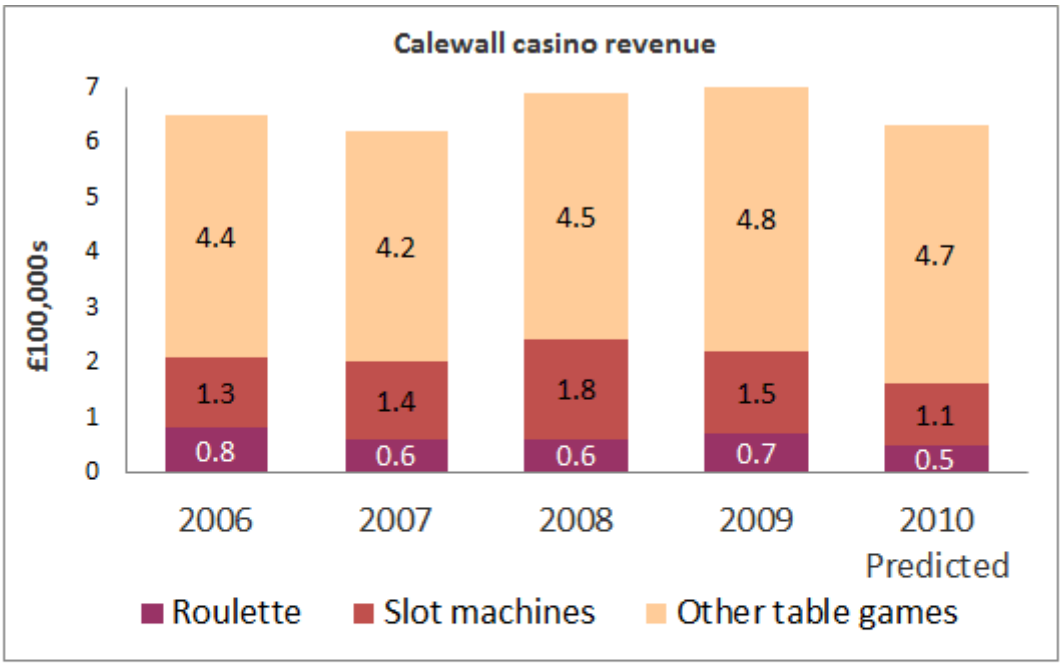
Q4 What will be the average annual change in attendance at Calewall casino across the years 2006-2010 if the 2010 prediction proves to be accurate?

(A) 47,500 decrease
(B) 53,500 decrease
(C) 52,500 increase
(D) 47,500 increase
(E) 53,500 increase

Step 1 *– Calculate the yearly change in attendance*
2007 = 0.6 increase
2008 = 1.1 increase
2009 = 0.5 increase
2010 prediction = 0.3 decrease

Step 2 *- Calculate the average yearly change in attendance*
(0.6 + 1.1 + 0.5 – 0.3) / 4 = 0.475 (100,000s) = 47,500

Thus the correct answer is (D) 47,500 increase



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	2006	14.6
	2007	15.2
	2008	16.3
	2009	16.8
	2010 Predicted	16.5

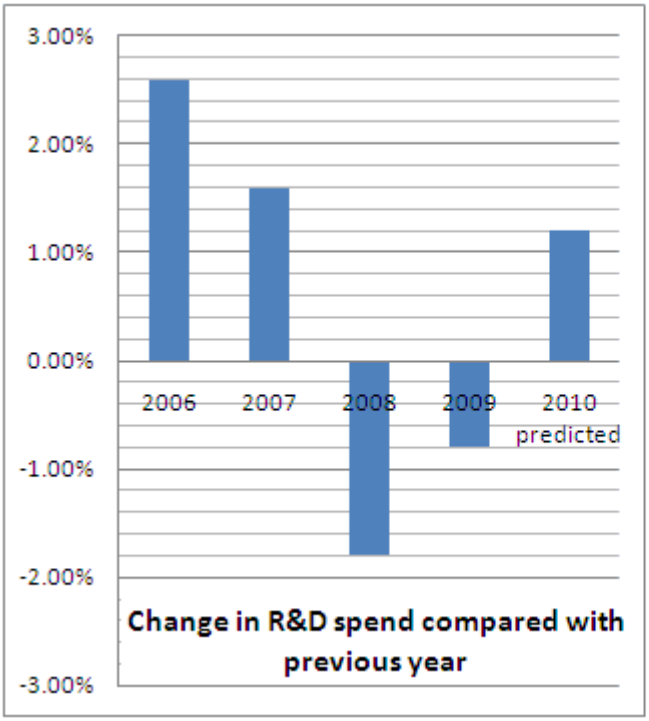
All data is non-cumulative

Q5 Calewall casino is subject to a takeover bid of 7 times its 2010 projected casino revenues. The Board responds that it can deliver 10% added value through cost-cuttings to this purchase price. What valuation is the Board putting on Calewall casino (in £ millions)?

(A) £48.51 million
(B) £44.1 million
(C) £4.85 million
(D) £4.41 million
(E) £6.3 million

Step 1 *- 2010 projected casino revenues = 4.7 + 1.1 + 0.5 = 6.3*
6.3 x 7 = 44.1
44.1 x 110% = 48.51 (£100,000s)

Thus the correct answer is (C) £4.85 million



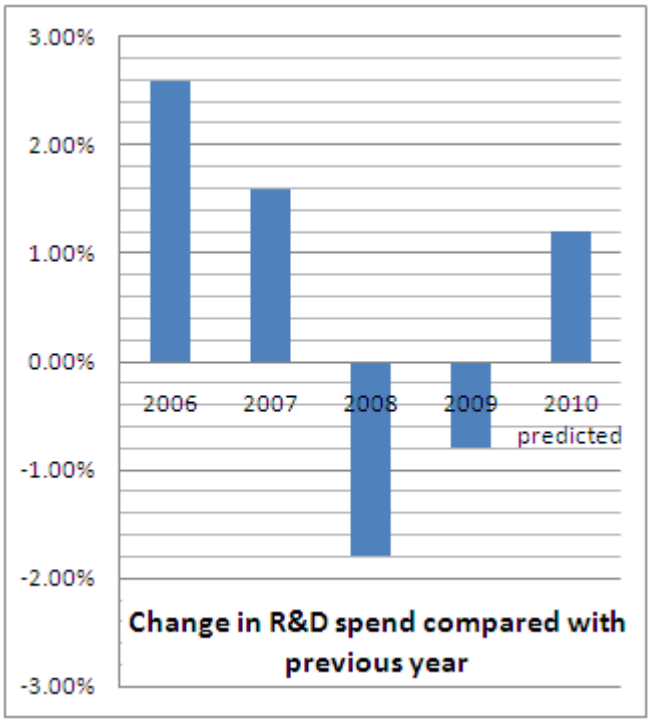
Teala Media; Total R&D projects for 2009	R&D Spend (£1000s)
Leadership development programme	425.9
Process improvement systems	672.8
Partnership with A.S.P. Systems	215.5
New product development	1,056.0
Spry Inc. joint venture	113.2

Q6 If the 2010 prediction proves to be accurate, what is the average annual percentage change in Teala Media's R&D spend across the 5 years shown?

(A) 0.53
(B) 0.54
(C) 0.55
(D) 0.56
(E) 0.57

Step 1 *- Calculate the average*
(2.6 + 1.6 -1.8 - 0.8 + 1.2) / 5 = 0.56

Thus the correct answer is (D) 0.56



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Process improvement systems	672.8
Partnership with A.S.P. Systems	215.5
New product development	1,056.0
Spry Inc. joint venture	113.2

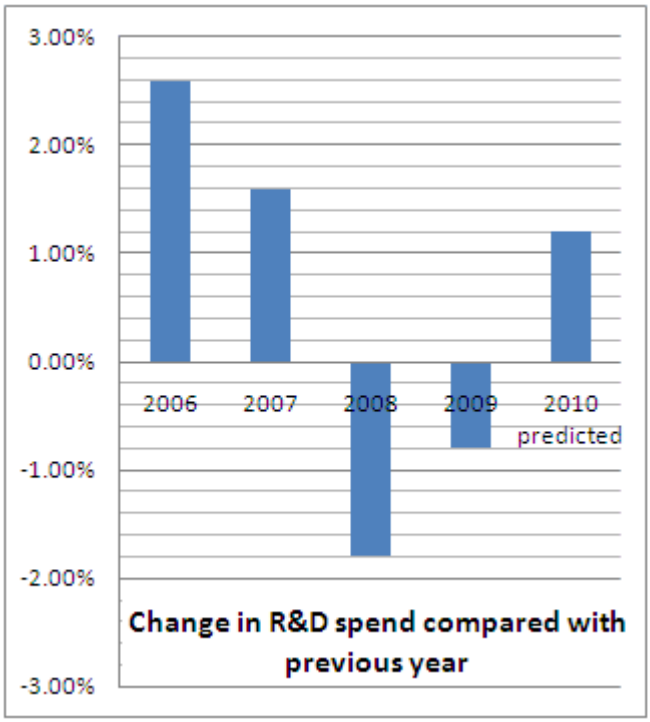
Q7 What is the R&D spend projected to be for 2010?

(A) £2.5 million
(B) £2.75 million
(C) £3.0 million
(D) £3.25 million
(E) £3.5 million

Step 1 *– Calculate the total R&D spends per project for 2009 (given in the table):*
Addition of 5 projects = 2,483.4 (£1000's)

Step 2 *– From the graph we see that the 2010 predicted change in R&D spend is +1.2% in the 2009 value. So add the 1.2%:*
2,483,400 x 101.2% = £2.51 million

Thus the correct answer is (A) £2.5 million



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New product development	1,056.0
Spry Inc. joint venture	113.2

Q8 What was the R&D spend for 2008 (to the nearest £1,000)?

(A) £2,235,000
(B) £2,613,000
(C) £2,503,000
(D) £2,483,000
(E) £2,305,000

Step 1 *– Total R&D spend for 2009 is obtained from the table.*
Addition of 5 projects = 2,483.4 (£1000's) = £2,483,400. You may still have this number from your previous notes.

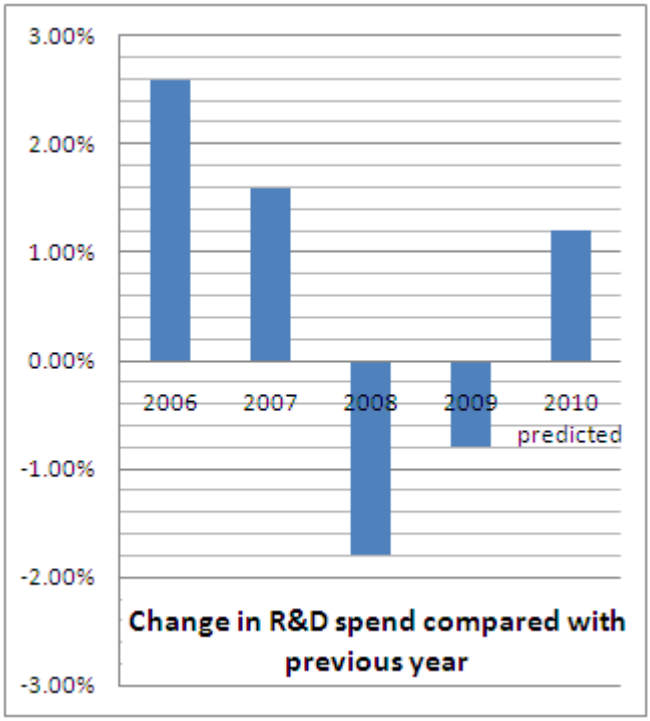
Note 1*: Notice that the graph gives "change in R&D spend compared with previous year". So in 2009 the change compared to 2008 was -0.8% from the graph. It is NOT the difference between -1.8% and -0.8% (i.e. +1.0%).*

Note 2*: To get the correct percentage calculation think about a 0.8% drop from the 2008 figure to the 2009 figure. We would say [2008 figure] x 0.992 = [2009 figure]. We have calculated the 2009 figure to be £2,483,400 so by rearranging we can find 2008.*

Step 2 *– Allow for the 0.8% decrease in R&D spend for 2009 compared with 2008*
£2,483,400 ÷ 0.992 = £2,503,427

Step 3 *– To the nearest £1000*

Thus the correct answer is (C) £2,503,000



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New product development	1,056.0
Spry Inc. joint venture	113.2

Q9 R&D overheads were 12% of R&D spend in 2009. If R&D overheads are projected to rise by 1.1% between 2009 and 2010, what is the 2010 predicted R&D sum left after these overheads are taken in to account?

(A) £1.02million
(B) £1.22million
(C) £2.11million
(D) £2.21million
(E) £2.48million

Step 1 *- Total R&D spend in 2009 was £2,483.4 (thousands). So £2,483,400.*

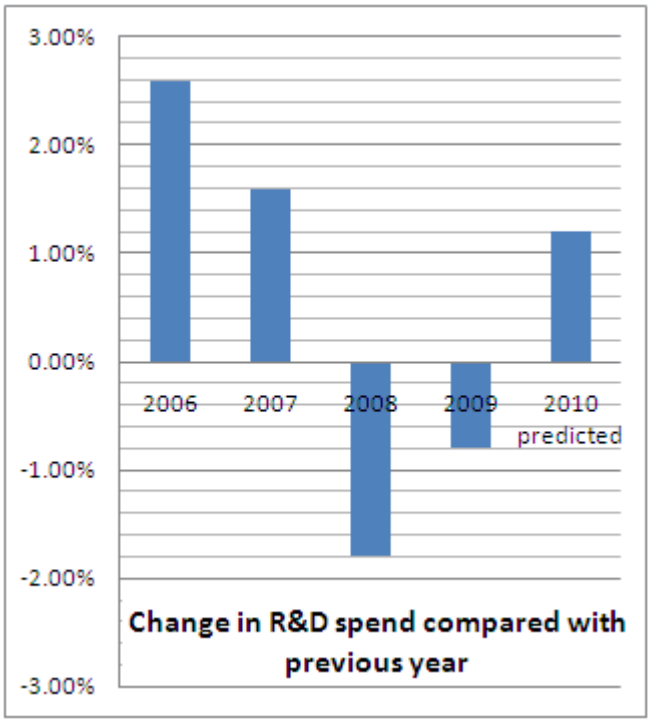
Step 2 *- R&D overheads we are told are 12% of spend so 12% x £2,483,400 = £298,008.*

Step 3 *- The graph tells us that the R&D spend in 2010 is projected to increase by 1.2%. This will be £2,483,400 x 1.012 = £2,513,200.8.*

And we are told in the question that the R&D overheads are expected to increase by 1.1%. This will be £298,008 x 1.011 = £301,286.1.

Step 4 *- So the available R&D money left after overheads is (2,513,200.8 – 301,286.1) = £2,211,914.7.*

Thus the correct answer is (D) £2.21 million



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New product development	1,056.0
Spry Inc. joint venture	113.2

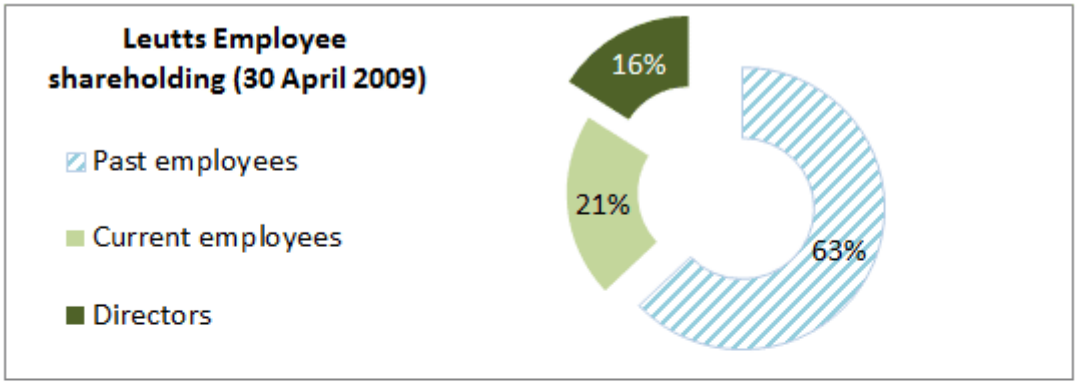
Q10 If delays at the end of 2009 resulted in a 2.5% increase in the cost of each of the two most expensive projects, what is the total R&D spend for 2009 (to the nearest £1,000)?

(A) £2,482,000
(B) £2,527,000
(C) £2,528,000
(D) £2,556,000
(E) None of These

Step 1 *– Add the additional 2.5% R&D charge for the two most expensive R&D projects for 2009*
2010 additional New product development spend = 1056 x 0.025 = 26.4
2010 additional Process improvement systems spend = 672.8 x 0.025 = 16.82

Step 2 *– Calculate Total R&D spend for 2009*
Total R&D spend = 425.9 + 672.8 + 215.5 + 1,056 + 113.2 + 26.4 + 16.82 = £2,526,620

Thus the correct answer is (B) £2,527,000



List of All Directors	Number of Shares		
	At 1st April 2009	At 30 April 2009	At 31st May 2009
Geoffrey Yates	1,100	1,050	910
Tobey Gilham	1,050	950	820
Susan Preddy	950	820	250
Samantha Hoxton	990	1,100	550
Trudy Stupples	1,200	960	2,400

Q11 What is the number of shares not held by Directors of Leutts (as of 30 April 2009)?

(A) 25,620
(B) 6,850
(C) 43,500
(D) 4,880
(E) Cannot tell from data

The data you need is in both the pie-chart and the table.

Step 1 *- The pie-chart shows that 16% of Directors hold shares, so 100 – 16 = 84% do not hold shares*

Step 2 *- Calculate the total number of director shares at 30 April 2009*

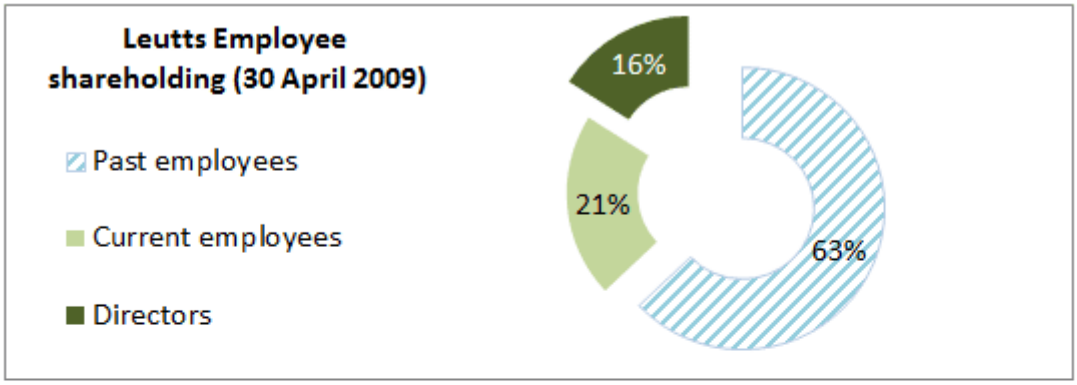
Director	*At 30 April 2009*
Geoffrey Yates	*1,050*
Tobey Gilham	*950*
Susan Preddy	*820*
Samantha Hoxton	*1,100*
Trudy Stupples	*960*
Total =	*4,880*

Step 3 *- Calculate 84%*

16% = 4,880

84% = 4,880 x 84 / 16 = 25,620

Thus the correct answer is (A) 25,620.



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Trudy Stupples	1,200	960	2,400

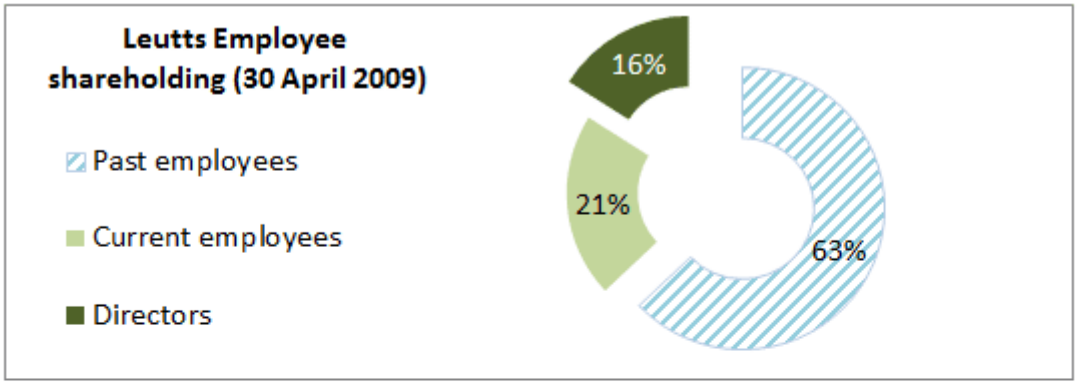
Q12 Which Director has bought or sold the largest number of shares across the 2-month period shown?

(A) Geoffrey Yates
(B) Trudy Stupples
(C) Samantha Hoxton
(D) Susan Preddy
(E) Tobey Gilham

Step 1 *- The largest number of shares can be found by calculating the differences in shareholdings between the periods 1st April – 30 April and 30 April – 31st May.*

Director	At 1st April 2009	At 30 April 2009	Shares Dealt over period	At 30 April 2009	At 31st May 2009	Shares Dealt over period	Total Shares Dealt
Geoffrey Yates	1,100	1,050	50	1,050	910	140	50 + 140 = 190
Tobey Gilham	1,050	950	100	950	820	130	100 + 130 = 230
Susan Preddy	950	820	130	820	250	570	130 + 570 = 700
Samantha Hoxton	990	1,100	110	1,100	550	550	110 + 550 = 660
Trudy Stupples	1,200	960	240	960	2,400	1,440	240 + 1,440 = 1,680

Thus the correct answer is (B) Trudy Stupples



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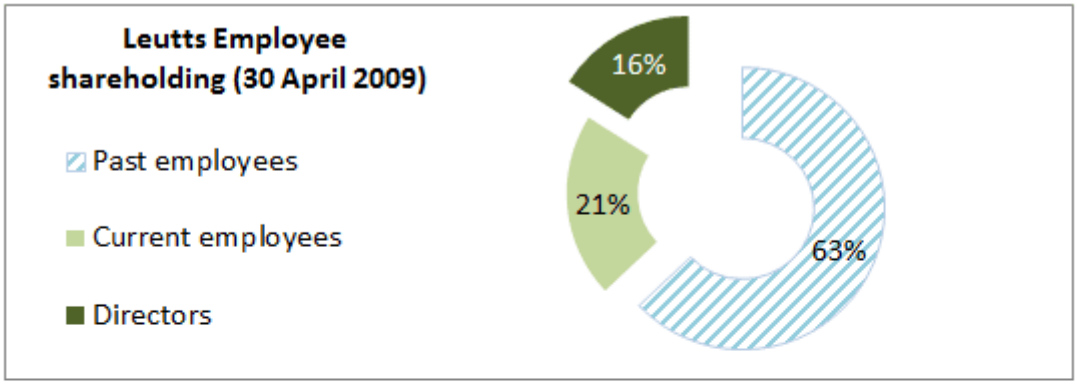
Samantha Hoxton	990	1,100	550
Trudy Stupples	1,200	960	2,400

Q13 If Tobey Gilham sells half of his shareholding at 31 May 2009 at £45 per share, how much is this trade worth?

(A) £3,690
(B) £18,250
(C) £18,450
(D) £9,230
(E) £36,900

Step 1 *- From the table, Tobey Gilham holds 820 shares at 31 May 2009*
820 / 2 = 410 shares at £45 per share
£45 x 410 = £18,450

Thus the correct answer is (C) £18,450



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Trudy Stupples	1,200	960	2,400

Q14 Which of the following statements is true?

(A) Current employees and Directors owned 40% of Leutts shares on 30 April 2009
(B) The largest Director share dealing was 1,440 shares
(C) Directors held 4,870 shares in total on 30 April 2009
(D) Tobey Gilham held the most shares of any Director on 1st April 2009
(E) Each Director has less shares on 31 May 2009 compared to 1st April 2009

Step 1 *- Go through checking whether each answer option is true or false*

Note 1 *- Current employees and Directors owned 37% of Leutts shares on 30 April 2009 – not 40%. FALSE*

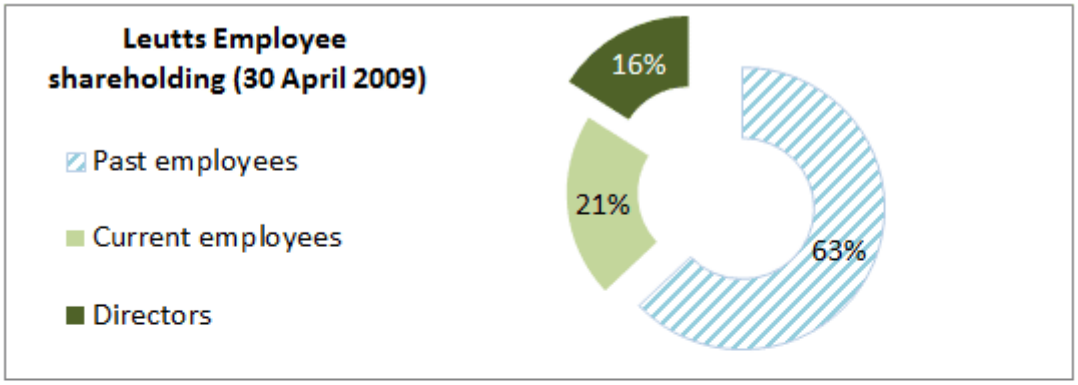
Note 2 *- The largest Director share dealing was 1440 shares which Trudy Stupples bought between 30 April – 31st May. TRUE*

Note 3 *- Directors held 4,880 shares in total on 30 April 2009 – not 4870 shares. FALSE*

Note 4 *- Trudy Stupples held the most shares of any Director on 1st April 2009 – not Tobey Gilham. FALSE*

Note 5 *- Each Director does not have less shares on 31 May 2009 compared to 1st April 2009 – Trudy Stupples has more shares. FALSE*

Thus the correct answer is (B) "The largest Director share dealing was 1440 shares"



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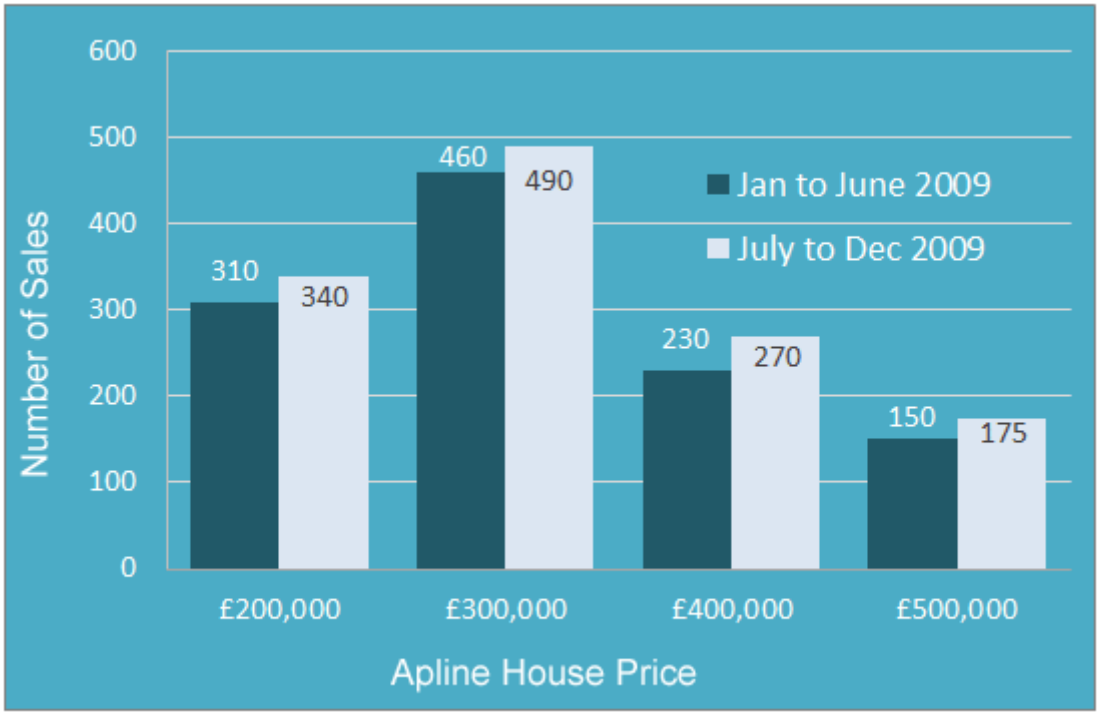
Samantha Hoxton	990	1,100	550
Trudy Stupples	1,200	960	2,400

Q15 If Leutts shares are worth £52 on 30 April 2009, then what is the share valuation of the entire company?

(A) £1,686,000
(B) £1,588,000
(C) £1,566,000
(D) £1,586,000
(E) £1,856,000

Step 1 *- Total number of Director shares = 4,880*
This represents 16% of the total shares
So, 100% = 4880 x 100 / 16 = 30,500
Company share valuation = 30,500 x £52 = £1,586,000

Thus the correct answer is (D) £1,586,000



Q16 The total number of £400,000 Apline houses sold in 2009 represented 80% of the annual sales target. If this target was split equally across 5 salerooms, what was the individual sales target for each salesroom?

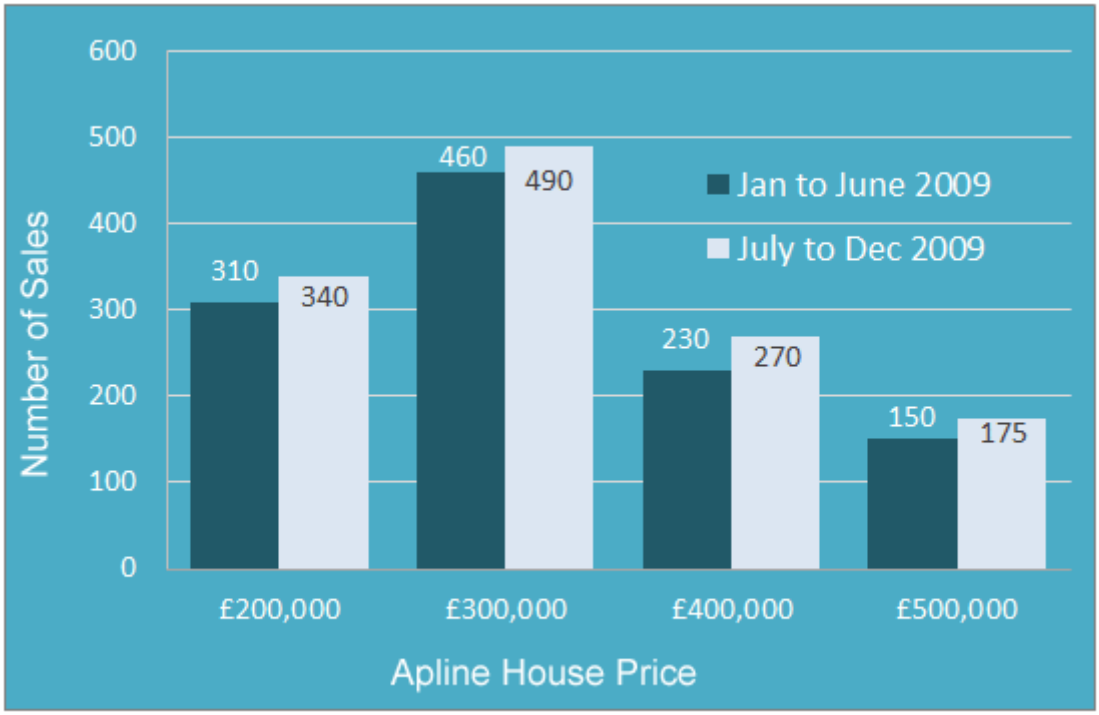
(A) 155
(B) 120
(C) 125
(D) 325
(E) 225

Step 1 *- Total £400,000 house sales = 230 + 270 = 500 houses*

Step 2 *- 500 = 2009 target (5 salesrooms) x 80% / 100*
2009 target (5 salesrooms) = 500/0.8 = 625

Step 3 *- 2009 target per salesroom = 625/5 = 125*

Thus the correct answer is (C) 125



Q17 Stamp duty of 3% is paid on house sales over £250,000. How much stamp duty is paid by purchasers of Apline houses in 2009?

(A) £16,425,000
(B) £18,550,000
(C) £19,425,000
(D) £6,000,000
(E) £8,550,000

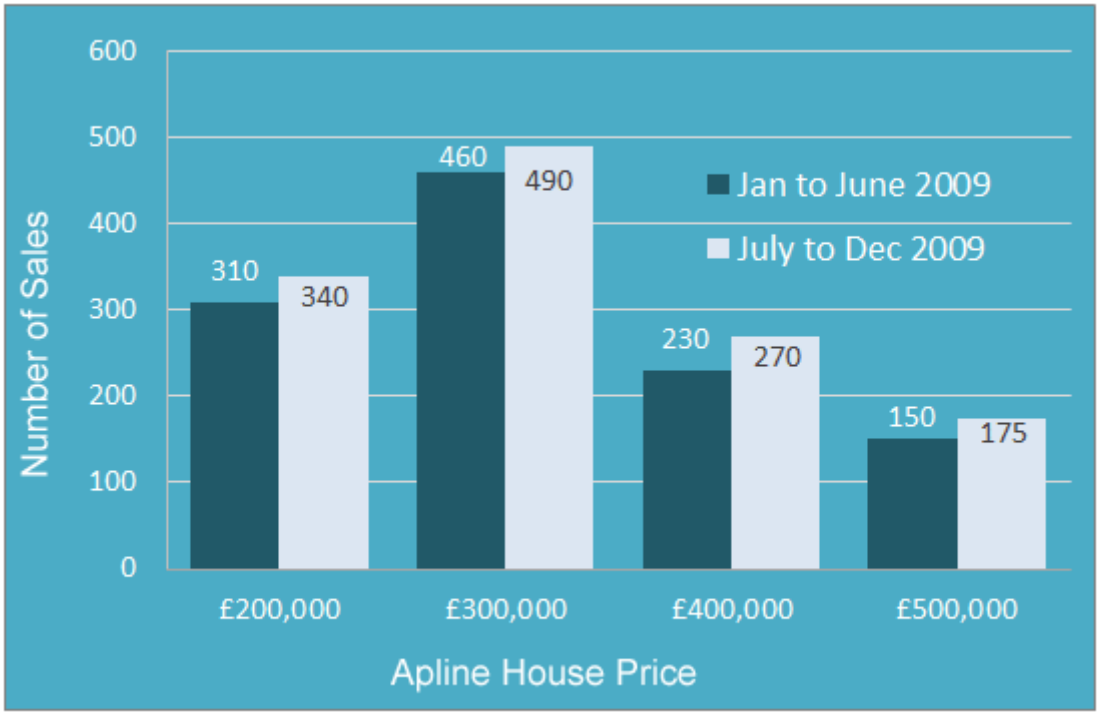
Step 1 *– Calculate the total number of houses where stamp duty is due*

£300,000 houses: 460 + 490 = 950
£400,000 houses: 230 + 270 = 500
£500,000 houses: 150 + 175 = 325

Step 2 *– Calculate the stamp duty due*

950 x £300,000 x 3% = £8,550,000
500 x £400,000 x 3% = £6,000,000
325 x £500,000 x 3% = £4,875,000
Total = £19,425,000

Thus the correct answer is (C) £19,425,000



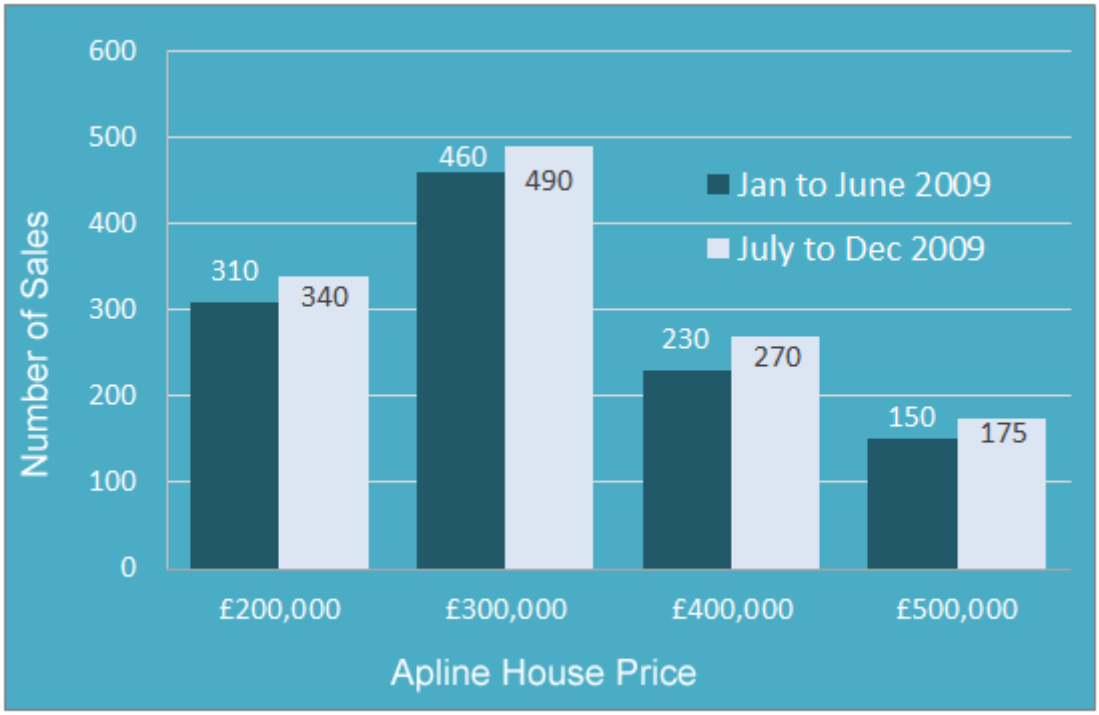
Q18 What is the total value of 2009 Apline house sales?

(A) £127.5 million
(B) £777.5 million
(C) £115 million
(D) £162.5 million
(E) £353,409 million

Step 1 *- Calculate the total house sales for each half-year period, as follows;*

Price	*Jan to June 2009*	*July to Dec 2009*	*Total Sales (£million)*
£200,000	*310*	*340*	*130*
£300,000	*460*	*490*	*285*
£400,000	*230*	*270*	*200*
£500,000	*150*	*175*	*162.5*
			777.5

Thus the correct answer is (B) £777.5 million



Q19 In 2010, Apline house sales between Jan-June remain the same as those in 2009, while the sales for the July-Dec period increase by a fifth. What is the difference in Apline house sales between July-Dec 2010 and Jan-June for 2010 (in £million)?

(A) 43.5
(B) 52.2
(C) 100
(D) 125
(E) 125.6

Step 1 *- Calculate the total sales for Jan to June:*

£200,000 x 310 = £62,000,000
£300,000 x 460= £138,000,000
£400,000 x 230 = £92,000,000
£500,000 x 150 = £75,000,000
£62,000,000 + £138,000,000 + £92,000,000 + £75,000,000 = £367,000,000

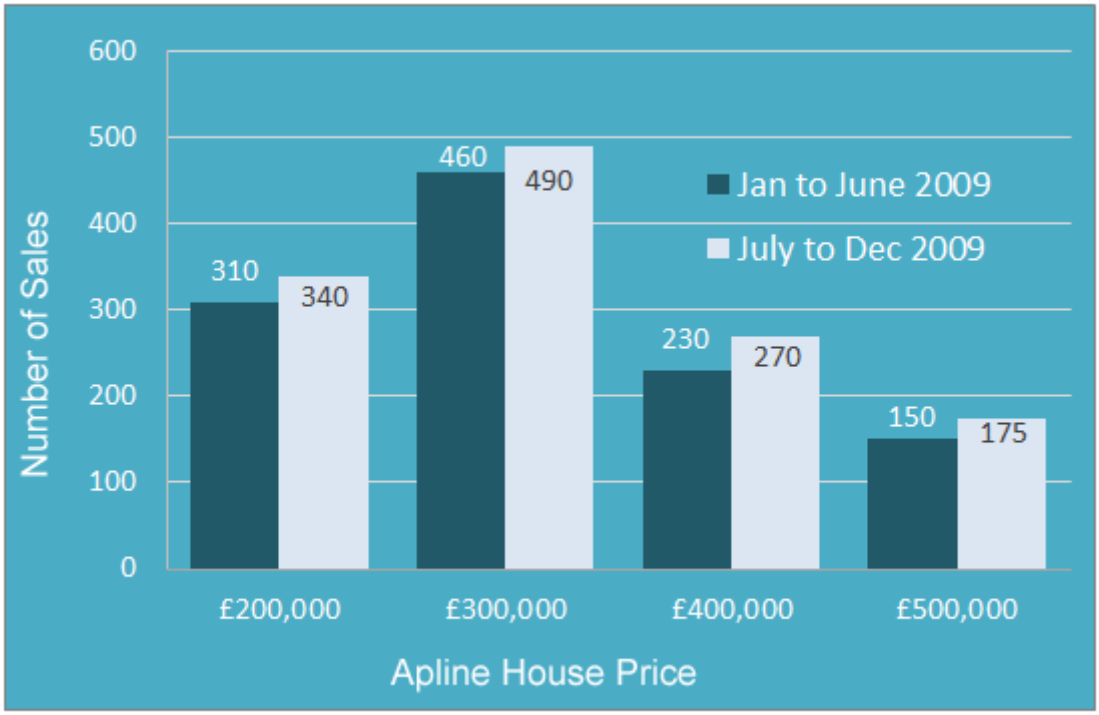
Step 2 *- Calculate the total sales for July to Dec and apply the increase of a fifth:*

£200,000 x 340 x 1.2 = £81,600,000
£300,000 x 490 x 1.2 = £176,400,000
£400,000 x 270 x 1.2 = £129,600,000
£500,000 x 175 x 1.2 = £105,000,000
£81,600,000 + £176,400,000 + £129,600,000 + £105,000,000 = £492,600,000

Step 3 *- Calculate the total difference between the two periods:*

£492,600,000 - £367,000,000 = £125,600,000

Thus the correct answer is (E) 125.6



Q20 A marketing drive is to be used to increase the value of Jan-June house sales to the value of July-December house sales. If each £ spent on marketing results in £3 of increased sales, what value must be spent on marketing?

(A) £156.6 million
(B) £75.4 million
(C) £52.2 million
(D) £36.6 million
(E) £14.5 million

Step 1 *– Calculate the difference between the value of Jan-June house sales and the value of July-December house sales. This sum in millions is:*
6 + 9 + 16 + 12.5 = 43.5 million.

Step 2 *– Calculate the marketing spend needed*
43.5 / 3 = 14.5 (million).

Thus the correct answer is (E) £14.5 million

NUMERICAL REASONING TEST 2

Instructions

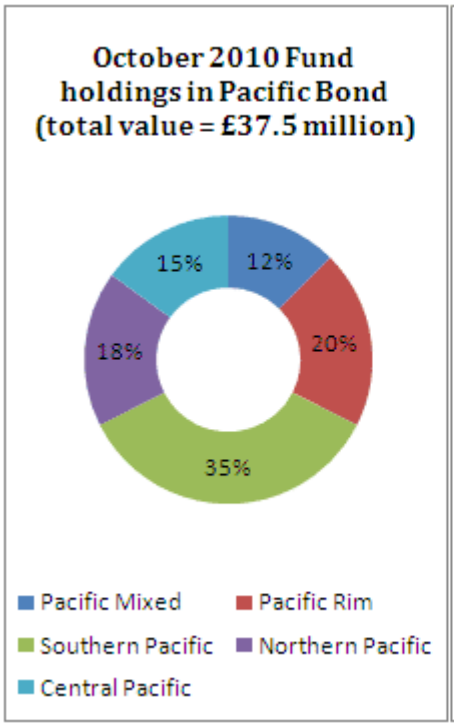
This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

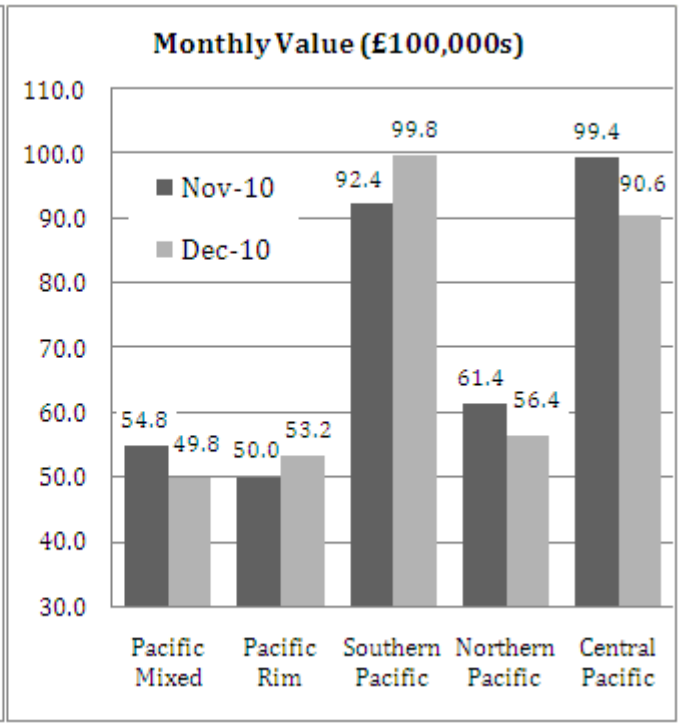
In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**





Q1 What was the 2010 percentage change in the value of the Pacific Rim holding between October and November (to the nearest percent)?

(A)) 41% less
(B)) 41% more
(C)) 36% less
(D)) 34% less
(E)) 33% less

Step 1 *– Calculate the Oct value*
The information that you need is shown in the pie-chart
£37.5 million x 20% = £7.5 million

Step 2 *– Calculate the Nov value*
The information that you need is shown in the graph
50.0 x £100,000 = £5 million

Step 3 *– Calculate the % difference*
7.5 - 5.0 = 2.5
100% x 2.5/7.5 = 33.33% less. Or simply divide 5.0 by 7.5 to get 0.6667, which is a 33.3% reduction.

Thus the correct answer is (E) 33% less

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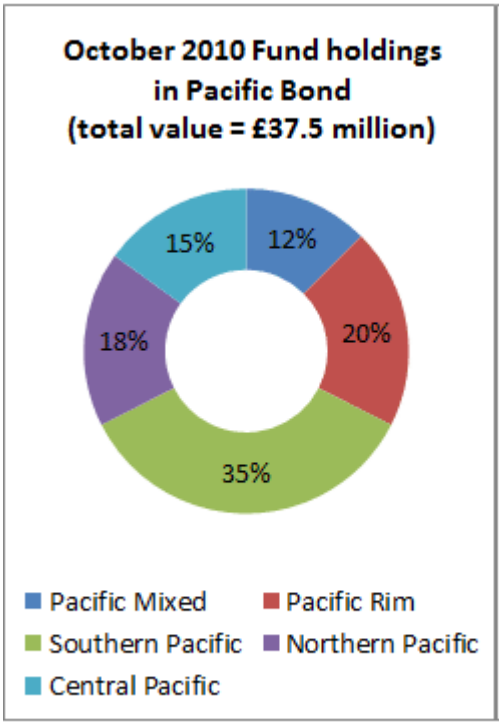
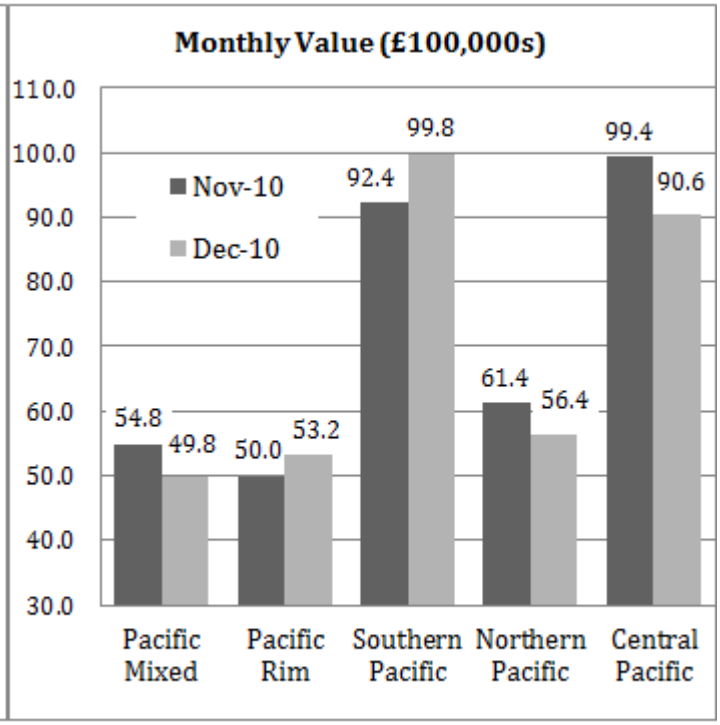




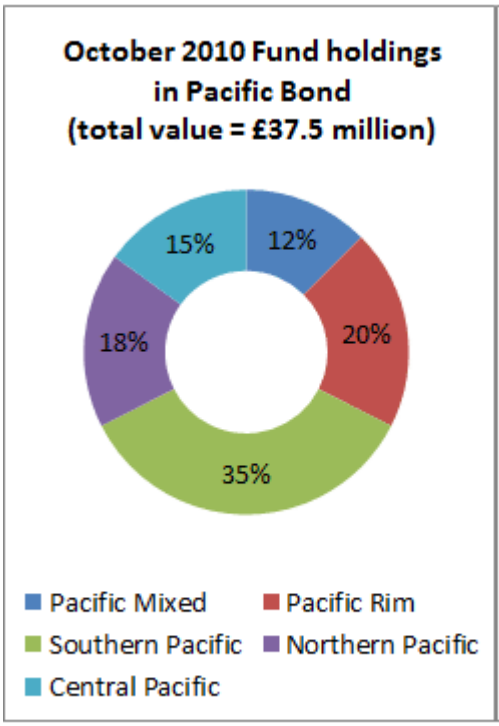
Q2 What was the ratio of Pacific Rim: Southern Pacific holdings in October 2010?

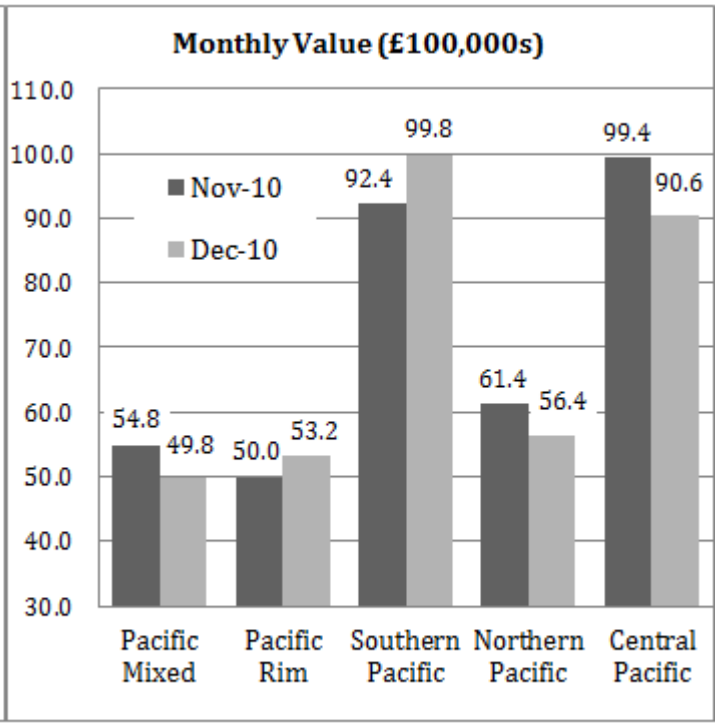
(A) 3:2
(B) 2:3
(C) 4:5
(D) 5:4
(E) 4:7

The information that you need is shown in the pie-chart
Step 1 *- Put these October %'s into a ratio*
20%:35% = 20:35

Step 2 *– Simplify the ratio, looking at the available answers.*
20:35 = 4:7

Thus the correct answer is (E) 4:7





Q3 In October 2010 which two Pacific Bond fund holdings when combined had the same value as Southern Pacific holdings?

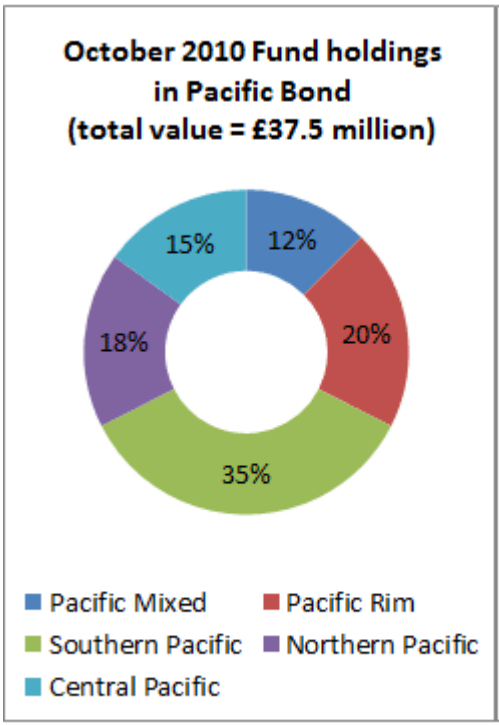
(A) Northern Pacific and Central Pacific
(B)) Central Pacific and Pacific Rim
(C) Pacific Mixed and Pacific Rim
(D) Pacific Mixed and Northern Pacific
(E) Pacific Rim and Northern Pacific

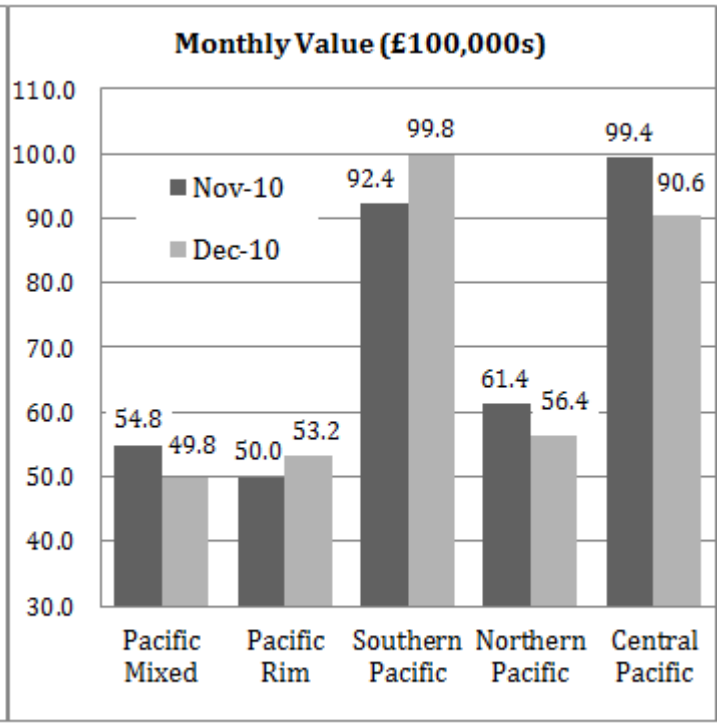
The information that you need is shown in the graph

Step 1 *– Look for those holdings that are likely to have a combined value around the 35% mark:*

Northern Pacific + Pacific Mixed = 30%
Pacific Rim + Pacific Mixed = 32%
Northern Pacific + Central Pacific = 33%
Pacific Rim + Northern Pacific = 38%
Central Pacific + Pacific Rim = 35%

Thus the correct answer is (B) Central Pacific and Pacific Rim



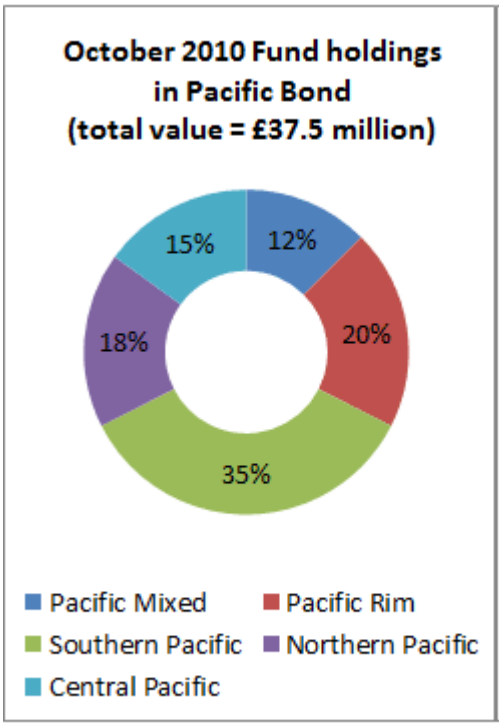


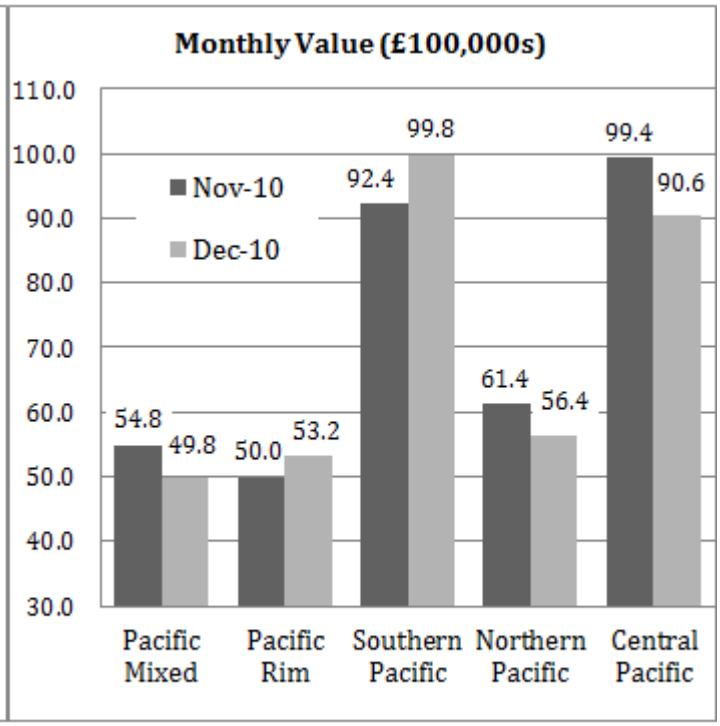
Q4 Which of the following represents the largest amount?

(A) October's Pacific Mixed holding
(B) Average November value of each of the 5 holdings
(C)) November value of holdings in Northern Pacific
(D)) 70% of November's value of holdings in Southern Pacific
(E) Average December value of each of the 5 holdings

Step 1 *- In this one it is not obvious which ones are going to be wrong and therefore able to be discounted, so we must calculate the value of each option:*
(A) October's Pacific Mixed holding = 4.5 million
(B) Average November value of each of the 5 holdings = 7.2 million
(C)) November value of holdings in Northern Pacific = 6.14 million
(D)) 70% of November's value of holdings in Southern Pacific = 6.47 million
(E) Average December value of each of the 5 holdings = 7 million

Thus the correct answer is (B) Average November value of each of the 5 holdings





Q5 In October 2010 what fraction of the total Pacific Bond did the Northern Pacific and Pacific Mixed fund holdings represent?

(A) 1/5
(B) 1/10
(C) 1/4
(D) 3/10
(E) 2/5

The information that you need is shown in the pie-chart.

Step 1 *- Add the Northern Pacific and Pacific Mixed %'s*
18% + 12% = 30%

Step 2 *– Express this figure as a fraction*
30 / 100 = 3/10

Thus the correct answer is (D) 3/10

Western Region - Store location	Number of sales staff	Units sold					
		Week 1		Week 2		Week 3	
		Actual	Target	Actual	Target	Actual	Target
Redcliff	8	20	15	20	25	35	35
Ather	9	30	20	40	25	40	35
Wilkington	5	25	20	18	25	24	30
Trew	8	15	10	14	15	12	15
Tunston	6	5	10	6	15	9	15

Q6 For Weeks 1 and 3, across all 5 stores combined, what was the difference (in units) between Actual and Target sales volumes?

(A)) 10 over target (Week 1); 10 under target (Week 3)
(B)) 10 over target (Week 1); 15 under target (Week 3)
(C)) 15 over target (Week 1); 10 under target (Week 3)
(D)) 15 over target (Week 1); 15 under target (Week 3)
(E)) 20 over target (Week 1); 10 under target (Week 3)

Step 1 *– Calculate the total Week 1 and Week 3 sales across the 5 Stores*
Week 1: 20 + 30 + 25 + 15 + 5 = 95
Week 3: 35 + 40 + 24 + 12 + 9 = 120

Step 2 *- Calculate the total Week 1 and Week 3 targets across the 5 Stores*
Week 1: 15 + 20 + 20 + 10 + 10 = 75
Week 3: 35 + 35 + 30 + 15 + 15 = 130

Step 3 *– Calculate the difference for Weeks 1 and 3*
Week 1: 95 – 75 = 20 over target
Week 3: 120 – 130 = 10 under target

Thus the correct answer is (E) 20 over target (Week 1); 10 under target (Week 3)

Western Region - Store location	Number of sales staff	Units sold					
		Week 1		Week 2		Week 3	
		Actual	Target	Actual	Target	Actual	Target
Redcliff	8	20	15	20	25	35	35
Ather	9	30	20	40	25	40	35
Wilkington	5	25	20	18	25	24	30
Trew	8	15	10	14	15	12	15
Tunston	6	5	10	6	15	9	15

Q7 Over the three week period, which Store achieved the highest sales per sales staff member?

(A)) Redcliff
(B) Ather
(C)) Wilkington
(D) Trew
(E) Tunston

Step 1 *– Calculate each Store's total sales*
Use the Actual sales figures for each of the 3 weeks, as follows:

Redcliff	*20 + 20 + 35 = 75*
Ather	*30 + 40 + 40 = 110*
Wilkington	*25 + 18 + 24 = 67*
Trew	*15 + 14 + 12 = 41*
Tunston	*5 + 6 + 9 = 20*

Step 2 *– Calculate each Store's average sales per sales staff member, as follows:*

Redcliff	*75 / 8 = 9.4*
Ather	*110 / 9 = 12.2*
Wilkington	*67 / 5 = 13.4*
Trew	*41 / 8= 5.1*
Tunston	*20 / 6 = 3.3*

Thus the correct answer is (C) Wilkington

Western Region - Store location	Number of sales staff	Units sold					
		Week 1		Week 2		Week 3	
		Actual	Target	Actual	Target	Actual	Target
Redcliff	8	20	15	20	25	35	35
Ather	9	30	20	40	25	40	35
Wilkington	5	25	20	18	25	24	30
Trew	8	15	10	14	15	12	15
Tunston	6	5	10	6	15	9	15

Q8 Next year staff numbers are to be reduced by 1 at stores with 6 or less staff, and by 2 staff at all other stores. What will be the average monthly target per staff member across all 5 stores if the regional target (across the 5 stores) is £168,000?

(A) £5,000
(B) £6,000
(C) £7,000
(D) £8,000
(E) £9,000

Step 1 *– Calculate the new staff numbers*

Redcliff	*8 – 2 = 6 staff*
Ather	*9 – 2 = 7 staff*
Wilkington	*5 – 1 = 4 staff*
Trew	*8 – 2 = 6 staff*
Tunston	*6 – 1 = 5 staff*

Step 2 *– Calculate the average target per staff member*
Average = target / total number of staff = 168,000 / 28 = £6,000

Thus the correct answer is (B) £6,000

Western Region - Store location	Number of sales staff	Units sold					
		Week 1		Week 2		Week 3	
		Actual	Target	Actual	Target	Actual	Target
Redcliff	8	20	15	20	25	35	35
Ather	9	30	20	40	25	40	35
Wilkington	5	25	20	18	25	24	30
Trew	8	15	10	14	15	12	15
Tunston	6	5	10	6	15	9	15

Q9 The Western Region's overall sales (£120,000) were in a ratio of 3:2 to the Eastern Region's sales which itself had half the sales of the Northern and Southern Regions combined. What were the total sales of all 4 Regions?

(A) £180,000
(B) £200,000
(C) £220,000
(D) £240,000
(E) £360,000

Step 1 *– Calculate each Region's sales*
Eastern Region's sales = 2 x 120,000 / 3 = 80,000
Northern + Southern Regions' sales = 80,000 x 2 = 160,000

Step 2 *– Calculate the total sales*
120,000 + 80,000 + 160,000 = 360,000

Thus the correct answer is (E) £360,000

Western Region - Store location	Number of sales staff	Units sold					
		Week 1		Week 2		Week 3	
		Actual	Target	Actual	Target	Actual	Target
Redcliff	8	20	15	20	25	35	35
Ather	9	30	20	40	25	40	35
Wilkington	5	25	20	18	25	24	30
Trew	8	15	10	14	15	12	15
Tunston	6	5	10	6	15	9	15

Q10 All sales in the three week period were based on an average £9.50 reduction in the sales price of the units sold. What was the total saving made by customers who bought units over the 3 week period (to the nearest £100)?

(A) £3,000
(B) £3,500
(C) £4,000
(D) £4,500
(E) £5,000

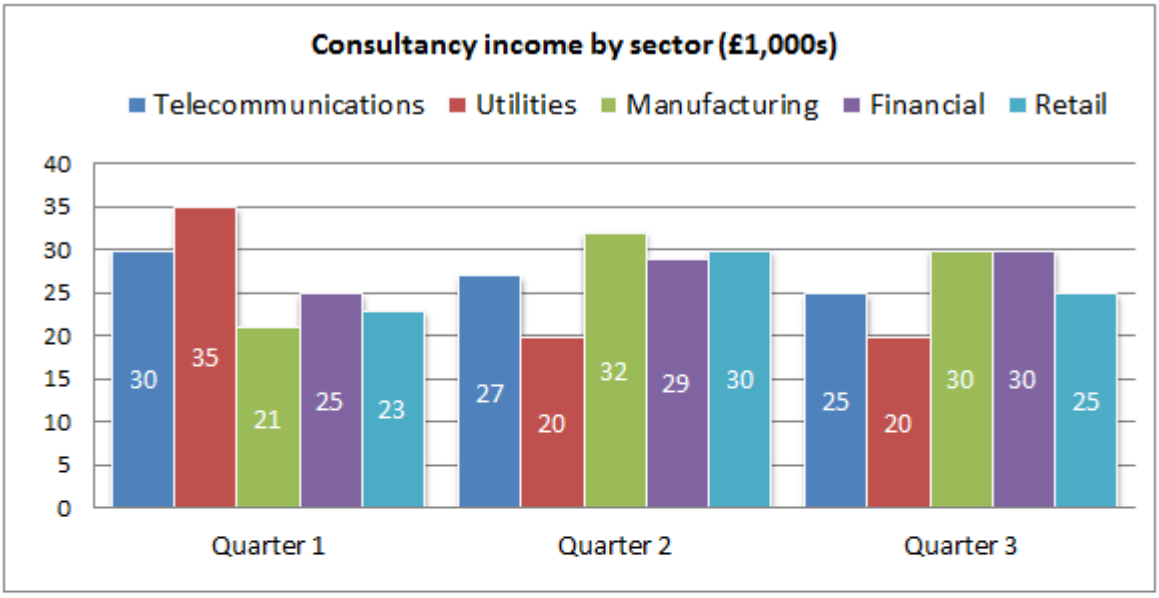
Step 1 *– Calculate the total sales*
We could use the working from Q6 to obtain Week 1 and Week 3 sales totals.
Week 2 sales = 20 + 40 + 18 + 14 + 6 = 98
Total sales = Week 1 + Week 2 + Week 3 = 95 + 98 + 120 = 313

Step 2 *– Calculate the amount saved*
313 x £9.50 = £2,973.50

Step 3 *- (to the nearest £100)*
£2,973.50 = £3,000

Thus the correct answer is (A) £3,000

Tip: *when summing numbers from a column or row, be careful not to take numbers from an adjacent category. It is also a good idea to enter the numbers as you go straight into your calculator, instead of writing out the sum on your rough paper then performing the calculation. This will reduce the number of stages in your working and save time and reduce the potential for input errors.*



Manufacturing sector - Consultancy income by consultant

Consultant	Quarter 1	Quarter 2	Quarter 3	Quarter 4
David	4,000	3,500	5,000	4,000
Peter	6,000	6,500	7,000	10,500
Sarah	6,000	9,000	5,500	3,000
Jane	4,000	4,500	7,500	4,500
Harry	1,000	4,500	5,000	6,500

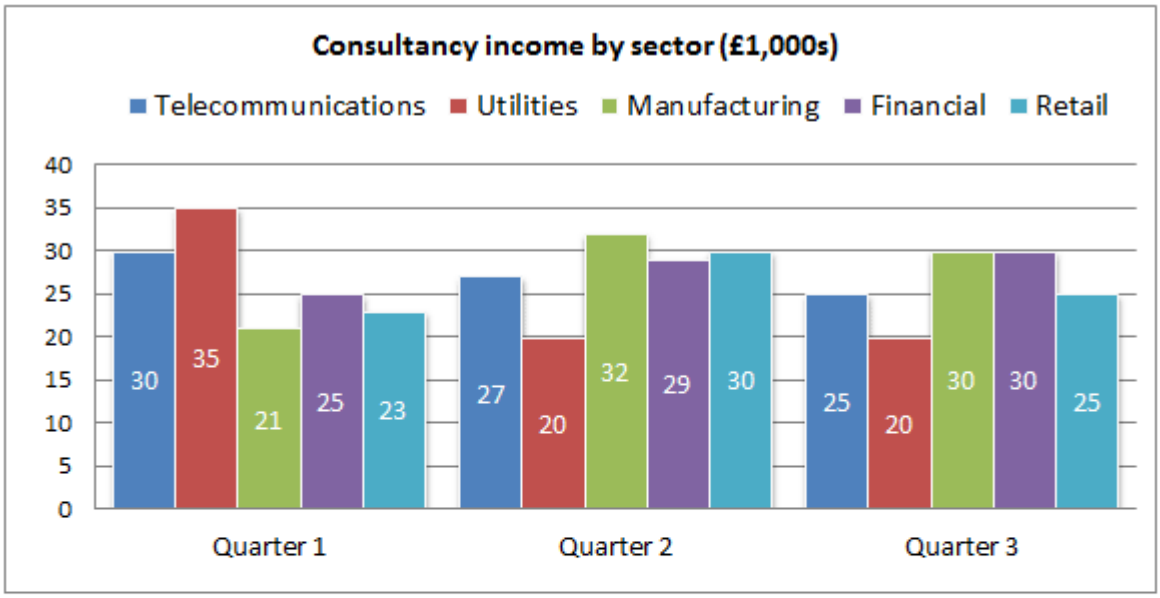
Q11 Which sector experienced the highest sales for Quarters 1, 2 and 3 combined?

(A)) Telecommunications
(B)) Utilities
(C) Manufacturing
(D) Financial
(E) Retail

The information that you need is shown in the graph Consultancy income by sector

***Step 1** – Calculate each sector's sales for Quarters 1, 2 and 3 combined*
Telecommunications = 30 + 27 + 25 = 82
Utilities = 35 + 20 + 20 = 75
Manufacturing = 21 + 32 + 30 = 83
Financial = 25 + 29 + 30 = 84
Retail = 23 + 30 + 25 = 78

Thus the correct answer is (D) Financial



Manufacturing sector - Consultancy income by consultant

Consultant	Quarter 1	Quarter 2	Quarter 3	Quarter 4
David	4,000	3,500	5,000	4,000
Peter	6,000	6,500	7,000	10,500
Sarah	6,000	9,000	5,500	3,000
Jane	4,000	4,500	7,500	4,500
Harry	1,000	4,500	5,000	6,500

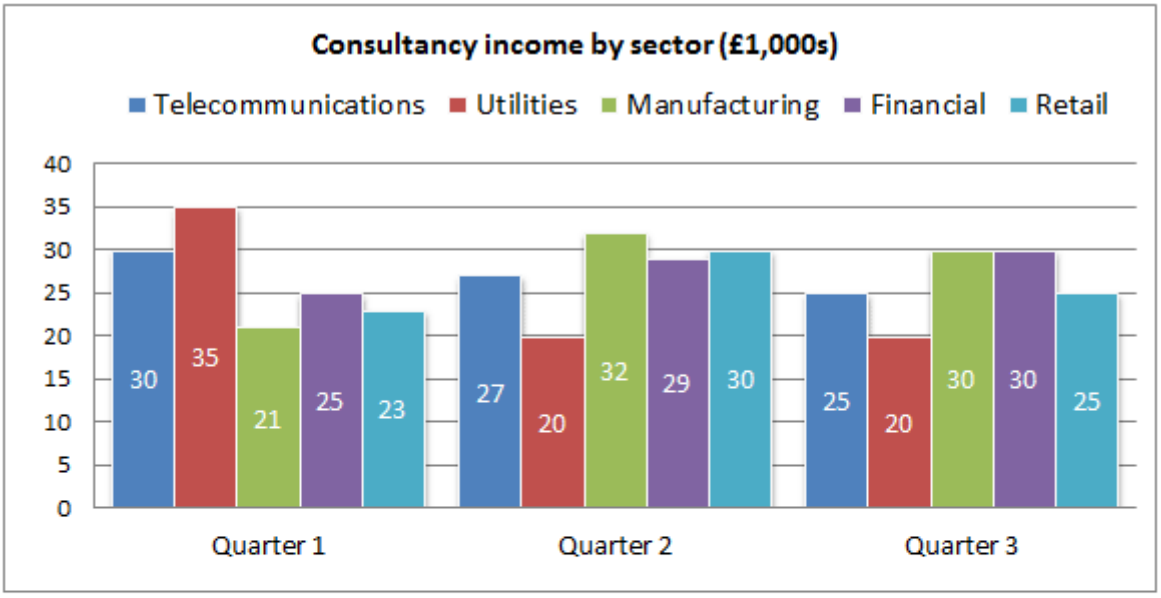
Q12 Quarter 4's income per sector is in the same ratio as Quarter 3, and the consultancy income from the Financial sector is £33,000. What is the consultancy income from the Utilities sector?

(A) Can't tell from the data provided
(B) £12,000
(C) £22,000
(D) £25,000
(E) £45,000

The information that you need is shown in the graph Consultancy income by sector
Step 1 *– Find the Quarter 3 ratios*
Utilities: Financial = 20:30 = 2:3

Step 2 *– Apply this ratio to the Utilities sector*
Utilities income = £33,000 x 2/3 = £22,000

Thus the correct answer is (C) £22,000



Manufacturing sector - Consultancy income by consultant

Consultant	Quarter 1	Quarter 2	Quarter 3	Quarter 4
David	4,000	3,500	5,000	4,000
Peter	6,000	6,500	7,000	10,500
Sarah	6,000	9,000	5,500	3,000
Jane	4,000	4,500	7,500	4,500
Harry	1,000	4,500	5,000	6,500

Q13 For Quarters 1 and 3 combined, which two Manufacturing sector consultants had incomes in the ratio 2:3?

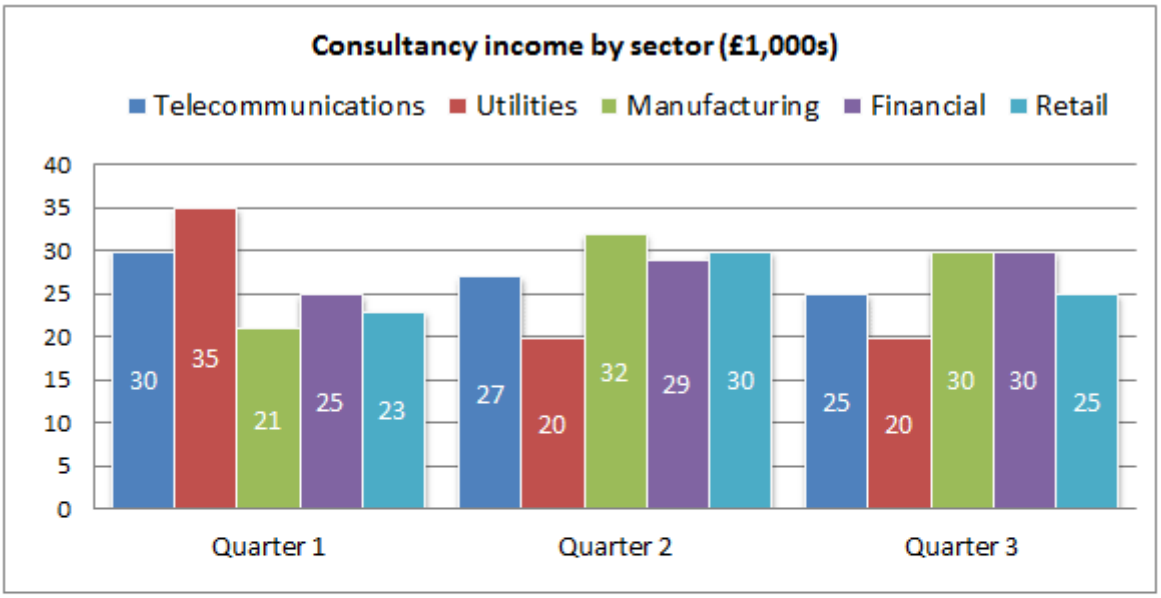
(A) Harry and David
(B) Sarah and Jane
(C)) Harry and Jane
(D)) David and Peter
(E)) David and Sarah

The information that you need is shown in the table.

***Step 1** – Calculate each Consultant's combined Quarter 1 and Quarter 3 income, as shown below:*

Consultant	*Quarter 1*	*Quarter 3*	*Combined*
David	*4,000*	*5,000*	*9,000*
Peter	*6,000*	*7,000*	*13,000*
Sarah	*6,000*	*5,500*	*11,500*
Jane	*4,000*	*7,500*	*11,500*
Harry	*1,000*	*5,000*	*6,000*

The only possible 2:3 ratio is between Harry and David (6,000:9,000)
Thus the correct answer is (A) Harry and David



Manufacturing sector - Consultancy income by consultant

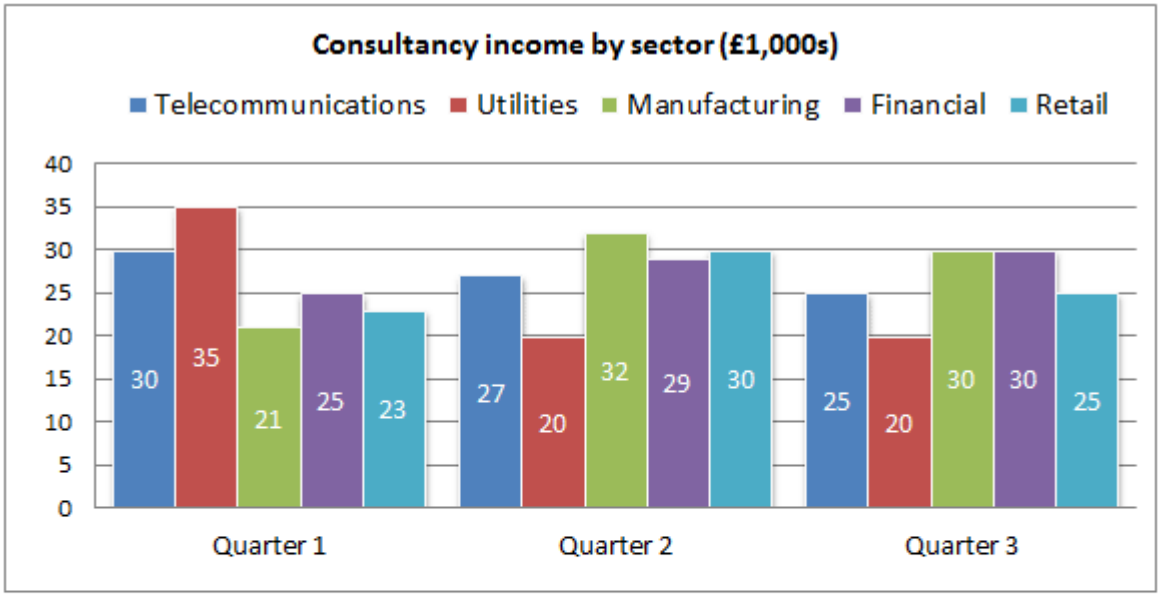
Consultant	Quarter 1	Quarter 2	Quarter 3	Quarter 4
David	4,000	3,500	5,000	4,000
Peter	6,000	6,500	7,000	10,500
Sarah	6,000	9,000	5,500	3,000
Jane	4,000	4,500	7,500	4,500
Harry	1,000	4,500	5,000	6,500

Q14 The Manufacturing sector income from the five consultants is supplemented by the work of an associate consultant. What was the associate consultant's income from the Manufacturing sector across Quarters 1 to 3?

(A) £3,000
(B) £4,000
(C) £6,000
(D) £8,000
(E) £9,000

The information that you require here is shown in the table.
Step 1 *– Calculate the total manufacturing income from the 5 consultants*
Q1 Total = 21,000
Q2 Total = 28,000
Q3 Total = 30,000
Total income (Quarters 1 to 3) = 79,000
The information that you require next is shown in the graph.
Step 2 *– Calculate the overall consultancy income from the manufacturing sector*
21 + 32 + 30 = 83,000
Step 3 *– Calculate the supplementary income*
83,000 – 79,000 = 4,000

Thus the correct answer is (B) £4,000



Manufacturing sector - Consultancy income by consultant

Consultant	Quarter 1	Quarter 2	Quarter 3	Quarter 4
David	4,000	3,500	5,000	4,000
Peter	6,000	6,500	7,000	10,500
Sarah	6,000	9,000	5,500	3,000
Jane	4,000	4,500	7,500	4,500
Harry	1,000	4,500	5,000	6,500

Q15 The total quarterly income target, starting with £115,000 for Quarter 1, increased by 20% for each subsequent Quarter. In Quarter 3 what was the difference between actual income and the target?

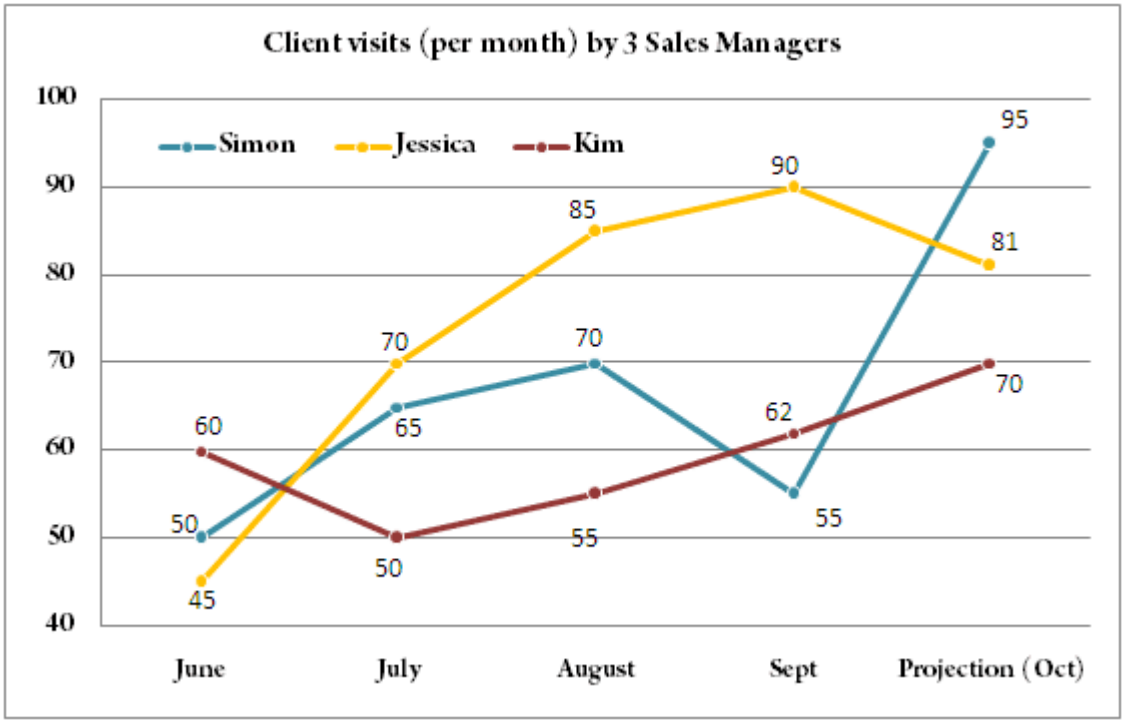
(A)) £8,000 under-performance
(B)) £18,400 under-performance
(C)) £31,000 over-performance
(D)) £31,000 under-performance
(E)) £35,600 under-performance

Step 1 *– Calculate the target for Quarter 3, based upon the Quarter 2 target*
Quarter 2 target = £115,000 x 120% = £138,000
Quarter 3 target = £138,000 x 120% = £165,600

The information that you require next is shown in the graph.
Step 2 *– Calculate the difference Quarter 3 income*
Quarter 3 income (000's) = 25 + 20 + 30 + 30 + 25 = 130

Step 3 *- calculate the difference in Quarter 3 between income and target*
130,000 - 165,600 = 35,600 under-performance

Thus the correct answer is (E) £35,600 underperformance



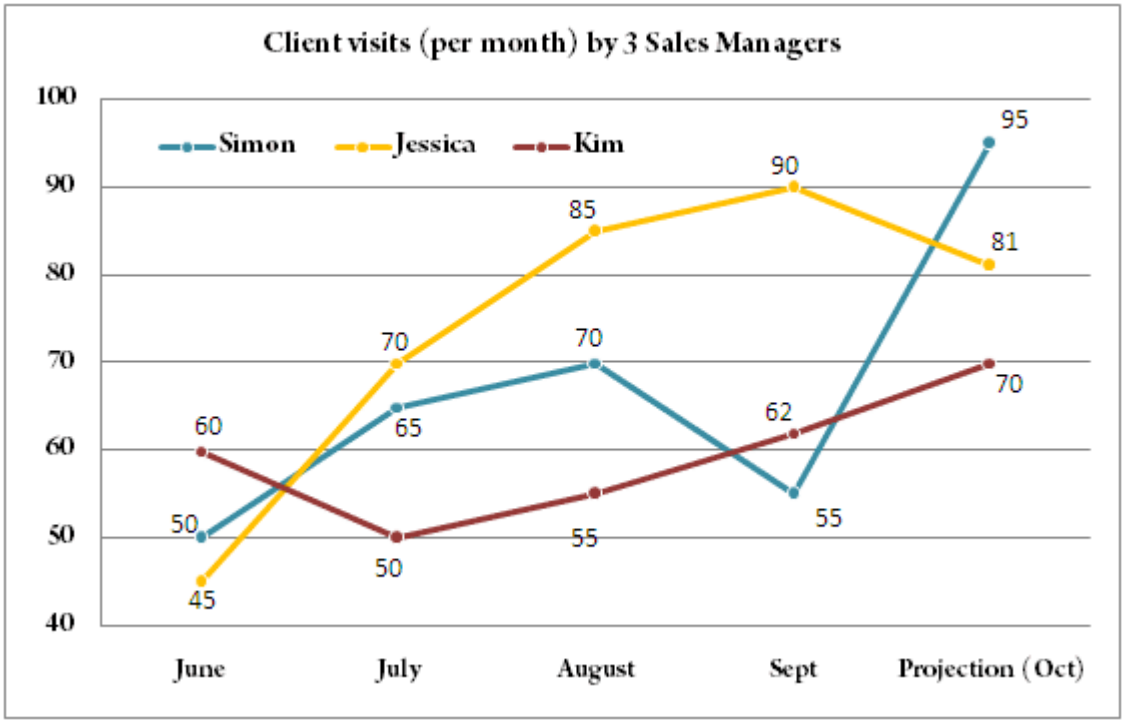
Q16 Simon and Jessica have travel allowances of 60p and 44p per mile respectively. Simon and Jessica each travel on average 25 miles and 30 miles respectively per sales visit. How much travel allowance is claimed in total by these 2 Sales Managers in August?

(A) £1,050
(B) £1,122
(C) £2,122
(D) £2,172
(E) £2,272

Step 1 *– Calculate Simon and Jessica's total mileage in August*
Simon = 60p x 70 x 25 = £1,050
Jessica = 44p x 85 x 30 = £1,122

Step 2 *– Calculate Simon and Jessica's combined travel allowance payment*
£1,050 + £1,122 = £2,172

Thus the correct answer is (D) £2,172



Q17 If the percentage change in sales visits between September and October (projected) continues for November, what will Jessica and Kim's number of complete sales visits be in November?

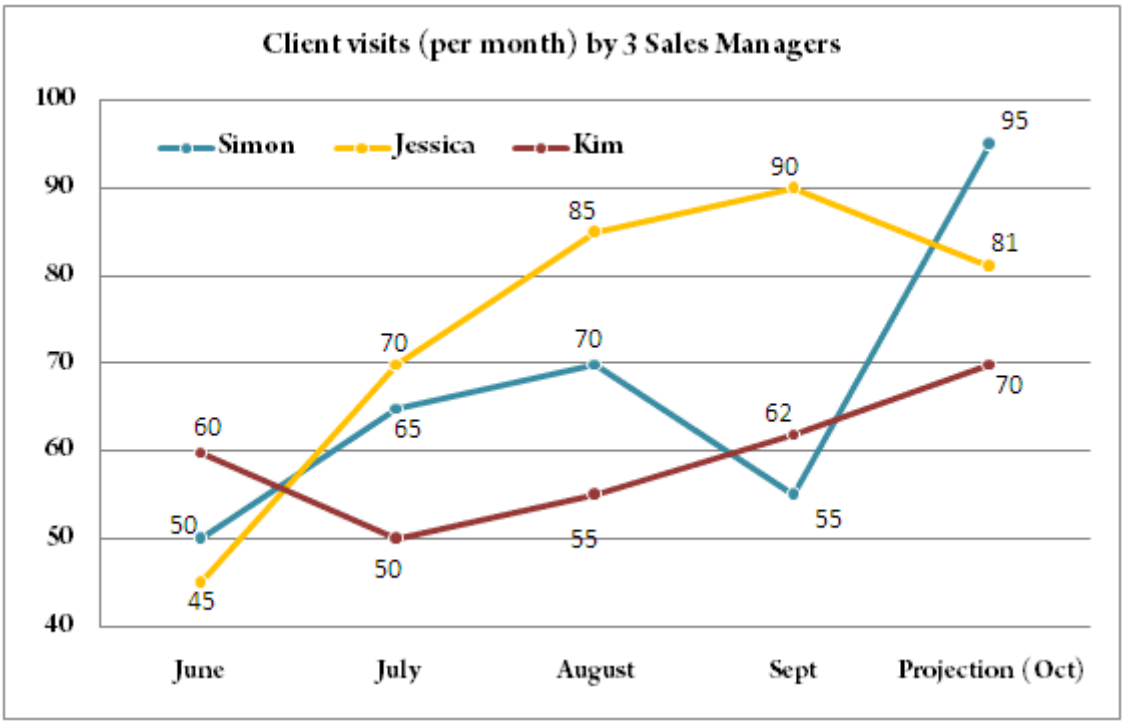
(A)) 71 visits (Jessica); 77 visits (Kim)
(B)) 71 visits (Jessica); 78 visits (Kim)
(C)) 72 visits (Jessica); 78 visits (Kim)
(D)) 72 visits (Jessica); 79 visits (Kim)
(E)) 73 visits (Jessica); 79 visits (Kim)

Step 1 *– Calculate the % change for Jessica and Kim*
Jessica = 81/90 = 10% decrease
Kim = 70/62 = 12.903% increase

Step 2 *– Calculate each Sales Manager's number of visits for November*
Jessica = 81 x 90% = 72.9 visits
Kim = 70 x 112.903% = 79.03 visits

Step 3 *- This step can catch out people. The question asks for "complete sales visits" and 0.9 is not a complete visit. So Jessica completed 72 visits. Don't be tempted to round up.*

Thus the correct answer is (D) 72 visits (Jessica); visits 79 (Kim)



Q18 If the margin of error on October's projected client visits is +/- 15%, what are the ranges for each Sales Manager (rounded to the nearest whole visit)?

(A) 90–100 (Simon); 77–85 (Jessica); 66–74 (Kim)
(B) 90– 107 (Simon); 74–87 (Jessica); 64–76 (Kim)
(C) 81–109 (Simon); 73–89 (Jessica); 63–77 (Kim)
(D) 81–109 (Simon); 69–93 (Jessica); 60–81 (Kim)
(E) 76–104 (Simon); 64–89 (Jessica); 56–76 (Kim)

Step 1 *- Calculate the 85% and 115% figures for each Sales Manager*
Simon (to the nearest whole visit)
95 x 85% = 80.75 = 81
95 x 115% = 109.25 = 109

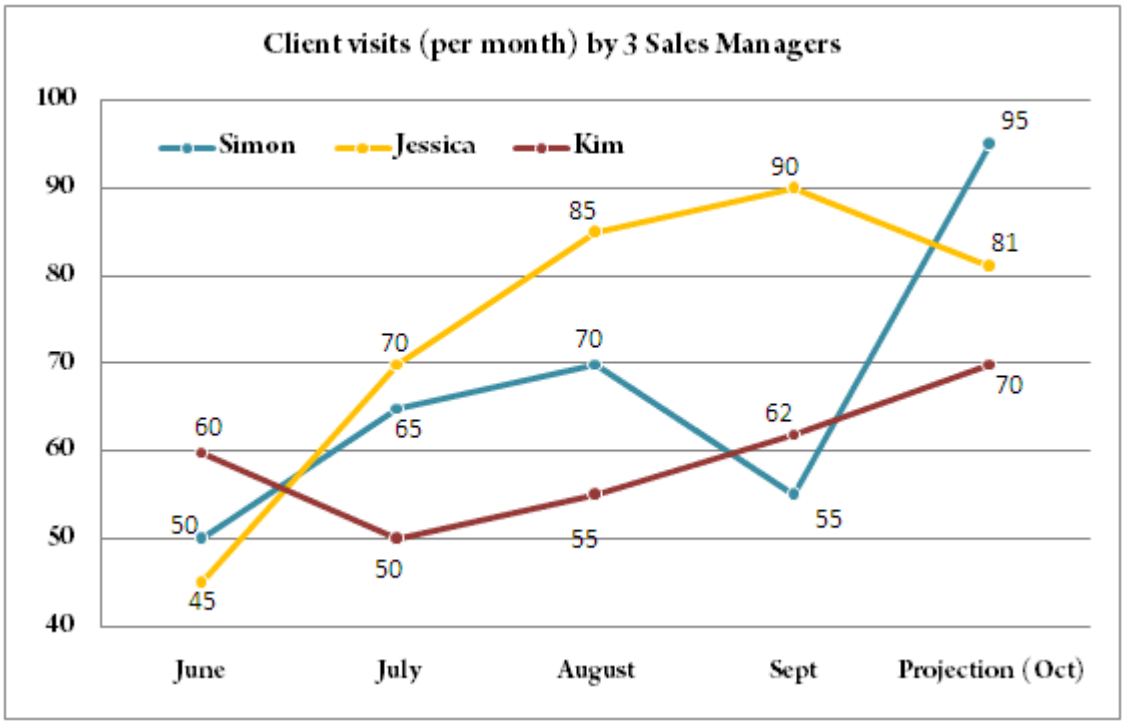
Note that already we have eliminated 3 of the possible 5 answers.

Step 2 *- Jessica:*
81 x 85% = 68.85 = 69
81 x 115% = 93.15 = 93

Kim
70 x 85% = 59.5 = 60
70 x 115% = 80.5 = 81

Thus the correct answer is (D) 81–109 (Simon); 69–93 (Jessica); 60–81 (Kim)

Tip: *note the difference between "round to the nearest whole visit" and "give the number of complete visits". This is the difference between rounding to the nearest integer (could be up or down) and ignoring any part-complete events (will always be rounding down).*



Q19 Jessica, who travelled 3,500 miles in July, travelled an extra 10 miles per client visit compared to Simon. What was the total number of miles Simon travelled in July?

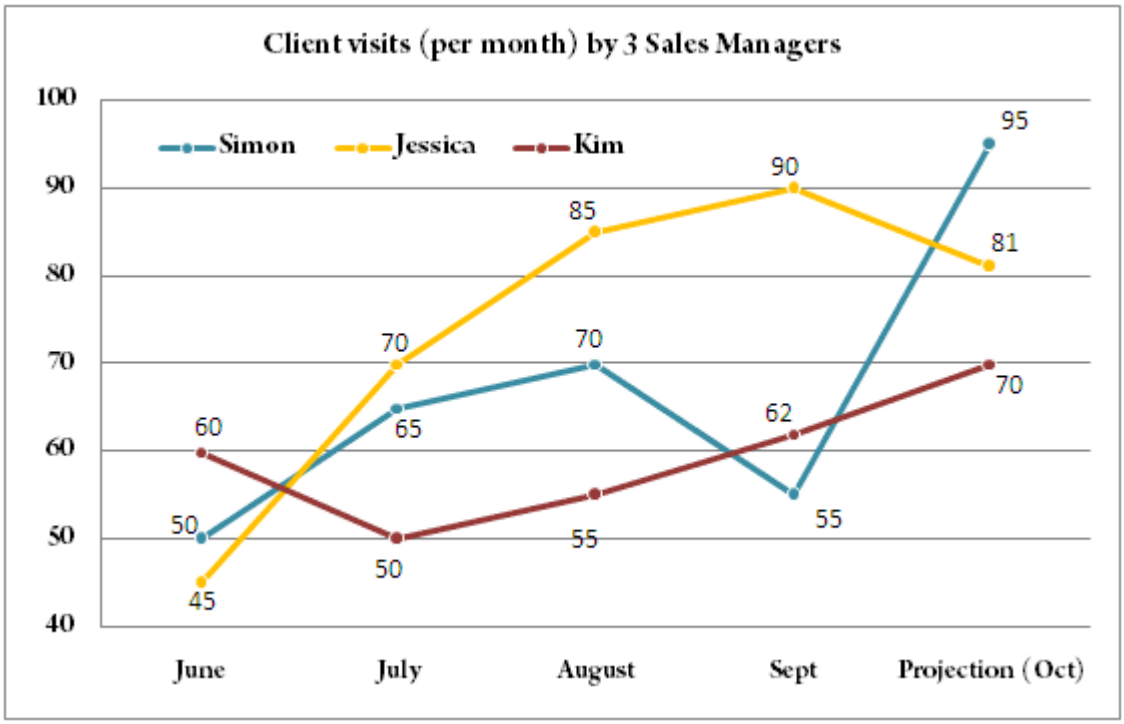
(A) 2,400
(B) 2,600
(C) 2,800
(D) 3,000
(E) 3,200

Step 1 *– Let x = Jessica's average mileage per client visit*
July visits = 70 = 3,500 / x
X = 3,500 / 70 = 50 miles per visit

Step 2 *– Calculate Simon's average mileage per client visit*
50 – 10 = 40 miles per visit

Step 3 *– Calculate the total number of miles Simon travelled in July*
40 x 65 = 2,600 miles

Thus the correct answer is (B) 2,600 miles



Q20 The average order value per client visit is £145, £135 and £125 for Simon, Jessica and Kim respectively. Which Sales Managers generate the highest and lowest order values in June?

(A) Kim (most); Jessica (least)
(B) Simon (most); Jessica (least)
(C)) Jessica (most); Kim (least)
(D)) Jessica (most); Simon (least)
(E) Kim (most); Simon (least)

Step 1 *- Calculate each Sales Manager's client sales for June, as follows:*

Simon	*50 visits in June*	*50 x £145 = £7,250*
Jessica	*45 visits in June*	*45 x £135 = £6,075*
Kim	*60 visits in June*	*60 x £125 = £7,500*

Thus the correct answer is (A) Kim (most); Jessica (least)

US operations Year 1	Subsidiary 1	Subsidiary 2	Subsidiary 3	Subsidiary 4	Subsidiary 5
Sales*	1,124	3,334	2,250	24,300	14,450
Salary payroll for all staff*	127	409	289	570	4,355
Number of staff	555	1,722	1,343	2,824	13,292
Dividends per share (cents):					
1. Interim dividend paid	6.2	8.5	9	15	11
2. Final proposed dividend	15.8	10.5	46	10	25
Number of shares (millions)	3	3.5	12	2.6	20

*in $100,000s

Q21 Which subsidiary will pay the lowest amount in dividends (interim and final dividends combined)?

(A) Subsidiary 1
(B) Subsidiary 2
(C) Subsidiary 3
(D) Subsidiary 4
(E) Subsidiary 5

Step 1 *- Calculate the total dividends payable per share for each subsidiary*
Subsidiary 1 = 6.2 + 15.8 = 22
Subsidiary 2 = 8.5 + 10.5 = 19
Subsidiary 3 = 9 + 46 = 55
Subsidiary 4 = 15 + 10 = 25
Subsidiary 5 = 11 + 25 = 36

Step 2 *– Calculate the total payable for each subsidiary*
Subsidiary 1 = 22 cents x 3 million shares = $660,000
Subsidiary 2 = 19 cents x 3.5 million shares = $665,000
Subsidiary 3 = 55 cents x 12 million shares = $6,600,000
Subsidiary 4 = 25 cents x 2.6 million shares = $650,000
Subsidiary 5 = 36 cents x 20 million shares = $7,200,000

Thus the correct answer is (D) Subsidiary 4

US operations Year 1	**Subsidiary 1**	**Subsidiary 2**	**Subsidiary 3**	**Subsidiary 4**	**Subsidiary 5**
Sales*	1,124	3,334	2,250	24,300	14,450
Salary payroll for all staff*	127	409	289	570	4,355
Number of staff	555	1,722	1,343	2,824	13,292
Dividends per share (cents):					
1. Interim dividend paid	6.2	8.5	9	15	11
2. Final proposed dividend	15.8	10.5	46	10	25
Number of shares (millions)	3	3.5	12	2.6	20

*in $100,000s

Q22 Which 2 or 3 subsidiaries had combined sales of 1,890.8 million?

(A) Subsidiaries 1 and 5
(B) Subsidiaries 2 and 5
(C) Subsidiaries 1, 2 and 5
(D) Subsidiaries 3 and 5
(E) Subsidiaries 1, 3 and 5

Step 1 *- This question is best answered by a process of elimination:*

- *Review the last number in each Sales figure. The Sales figures for Subsidiary 1 and Subsidiary 2 end in "4" and the others end in zero.*
- *Since the total ends in "8" both Subsidiary a and Subsidiary b must be included in the answer (i.e. "4" + "4" = "8").*
- *At this stage you can see that only one of the possible answers includes Subsidiary 1 and Subsidiary 2. If you wanted to complete the sum to double-check, do so.*
- *Subsidiary 1 + 2 + 5 = 1,124 + 3,334 + 14,450 = 18,908 (100,000s).*

Thus the correct answer is (C) Subsidiaries 1, 2 and 5

US operations Year 1	Subsidiary 1	Subsidiary 2	Subsidiary 3	Subsidiary 4	Subsidiary 5
Sales*	1,124	3,334	2,250	24,300	14,450
Salary payroll for all staff*	127	409	289	570	4,355
Number of staff	555	1,722	1,343	2,824	13,292
Dividends per share (cents):					
1. Interim dividend paid	6.2	8.5	9	15	11
2. Final proposed dividend	15.8	10.5	46	10	25
Number of shares (millions)	3	3.5	12	2.6	20

*in $100,000s

Q23 Over the next year, Subsidiary 5's Sales are expected to drop by a fifth whilst its number of staff is expected to increase by 15%. What will be the percentage change in the Sales per member of staff from Year 1 to the next?

(A) 25%
(B) 26%
(C) 29%
(D) 30%
(E) 44%

Step 1 *– Calculate next year's changes in the Subsidiary 5 data*
Sales 14,450 x 4/5 = 11,560
Number of staff = 13,292 x 115% = 15,285.8

Step 2 *– Calculate next year's Sales per member of staff*
11,560 / 15,285.66 = 0.756 (in $100,000's)

Step 3 *– Calculate this year's Sales per member of staff*
14,450 / 13,292 = 1.087 (in $100,000's)

Step 4 *– Calculate the % change in the Sales per member of staff*
0.756 / 1.087 = 0.6955, which is a 30.4% drop.

Tip: *note we must divide 0.756 by 1.087, not the other way round, because the question asks us to go* ***from*** *Year 1* ***to*** *next year. The calculation depends on what we take as the reference point. In full, the calculation is (1.087 – 0.756) / 1.087 = 30.4%.*

Thus the correct answer is (D) 30%

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US operations Year 1	Subsidiary 1	Subsidiary 2	Subsidiary 3	Subsidiary 4	Subsidiary 5
Sales*	1,124	3,334	2,250	24,300	14,450
Salary payroll for all staff*	127	409	289	570	4,355
Number of staff	555	1,722	1,343	2,824	13,292
Dividends per share (cents):					
1. Interim dividend paid	6.2	8.5	9	15	11
2. Final proposed dividend	15.8	10.5	46	10	25
Number of shares (millions)	3	3.5	12	2.6	20

*in $100,000s

Q24 What is the ratio of Subsidiary 4's interim dividend per share compared to Subsidiary 5's final dividend per share?

(A) 2:3
(B) 5:2
(C) 2:5
(D) 3:5
(E) 5:3

This is a fairly straight-forward one.

Step 1 *– Put the figures from the table into a ratio*
15:25

Step 2 *– Simplify the ratio*
3:5

Thus the correct answer is (D) 3:5

US operations Year 1	Subsidiary 1	Subsidiary 2	Subsidiary 3	Subsidiary 4	Subsidiary 5
Sales*	1,124	3,334	2,250	24,300	14,450
Salary payroll for all staff*	127	409	289	570	4,355
Number of staff	555	1,722	1,343	2,824	13,292
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2. Final proposed dividend	15.8	10.5	46	10	25
Number of shares (millions)	3	3.5	12	2.6	20

*in $100,000s

Q25 What is the lowest payroll per member of staff (across the 5 subsidiaries)?

(A) £23,751
(B) £22,883
(C) £21,519
(D) £20,764
(E) £20,184

Step 1 *- Calculate the average payroll for each subsidiary*
Subsidiary 1 = 12,700,000 / 555 = 22,883
Subsidiary 2 = 40,900,000 / 1,722 = 23,751
Subsidiary 3 = 28,900,000 / 1,343 = 21,519
Subsidiary 4 = 57,000,000 / 2,824 = 20,184
Subsidiary 5 = 435,500,000 / 13,292 = 32,764

Thus the correct answer is (E) £20,184

Consolidated Income Statements (£millions)	Competitor A	Competitor B	Competitor C
Revenue	580	632	600
Gross profit	128	148	147
Operational profit	108	128	131
Profit before tax	90	112	117
Corporation tax*	-27	-33.6	-35.1
Profit after tax	63	78.4	81.9

*Tax = 30%

Q26 If Profit before tax increases by 15% for Competitor B and decreases by 8% for Competitor A, what is the difference between Competitor A and Competitor B's corporation tax payments (to the nearest £million)?

(A)) £10 million
(B)) £12 million
(C)) £14 million
(D)) £16 million
(E)) £18 million

Tip: *Don't be caught out by the fact that the question lists Competitor B first, when you might be expecting to see Competitor A then Competitor B. This is intended to throw those not paying attention.*

Step 1 *– Add 15% to Competitor B's profit before tax*
112 x 115% = 128.8

Step 2 *– Decrease Competitor A's profit before tax by 8%*
90 x 92% = 82.8

Step 3 *- Calculate the difference in corporation tax (at 30%)*
(128.8 – 82.8) x 30% = 13.8 = £14 million (to the nearest £million)

Thus the correct answer is (C) £14 million

Consolidated Income Statements (£millions)	Competitor A	Competitor B	Competitor C
Revenue	580	632	600
Gross profit	128	148	147
Operational profit	108	128	131
Profit before tax	90	112	117
Corporation tax*	-27	-33.6	-35.1
Profit after tax	63	78.4	81.9

*Tax = 30%

Q27 Competitor B and Competitor C choose to declare their Revenues in $ and Euros respectively. What are these figures? (Use the exchange rates 1£ = $1.66; 1£ = €1.15).

(A)) $1,043 million (Competitor B); €708 million (Competitor C)
(B)) $1,049 million (Competitor B); €690 million (Competitor C)
(C)) $1,049 million (Competitor B); €720 million (Competitor C)
(D)) $720 million (Competitor B); €1,055 million (Competitor C)
(E)) Can't tell from the data provided

Step 1 *– Calculate Competitor B revenue in $*
632 x 1.66 = $1,049

Step 2 *– Calculate Competitor C revenues in Euros*
600 x 1.15 x = €690

Thus the correct answer is (B) $1,049 million (Competitor B); €690 million (Competitor C)

Consolidated Income Statements (£millions)	Competitor A	Competitor B	Competitor C
Revenue	580	632	600
Gross profit	128	148	147
Operational profit	108	128	131
Profit before tax	90	112	117
Corporation tax*	-27	-33.6	-35.1
Profit after tax	63	78.4	81.9

*Tax = 30%

Q28 What would be the difference in Euros if Competitor A used an exchange rate of 1£ = €1.20, rather than 1£ = €1.15, when calculating its Profit after tax?

(A)) €0.05 million
(B)) €1.15 million
(C)) €2.05 million
(D)) €3.05 million
(E)) €3.15 million

Step 1 *– Calculate the difference in the exchange rate*
1.20 - 1.15 = €0.05

Step 2 *– Calculate the difference in Euros*
€0.05 x 63 = €3.15 million

Thus the correct answer is (E) €3.15 million

Consolidated Income Statements (£millions)	Competitor A	Competitor B	Competitor C
Revenue	580	632	600
Gross profit	128	148	147
Operational profit	108	128	131
Profit before tax	90	112	117
Corporation tax*	-27	-33.6	-35.1
Profit after tax	63	78.4	81.9

*Tax = 30%

Q29 What was the average Gross profit across the 3 competitors (to the nearest £10million)?

(A)) £140 million
(B)) £141 million
(C)) £142 million
(D)) £143 million
(E)) £144 million

Step 1 *– Calculate the total Gross Profit 128 + 148 + 147 = 423*

Step 2 *– Calculate the average 423 / 3 = 141*

Step 3 *– To the nearest £10million = £140 million*

Thus the correct answer is (A) £140 million

Consolidated Income Statements (£millions)	Competitor A	Competitor B	Competitor C
Revenue	580	632	600
Gross profit	128	148	147
Operational profit	108	128	131
Profit before tax	90	112	117
Corporation tax*	-27	-33.6	-35.1
Profit after tax	63	78.4	81.9

*Tax = 30%

Q30 Competitor C moves to a country charging 15% corporation tax and corporation tax falls to 22% for Competitors A and B. What is the total corporation tax payable for the 3 competitors (based upon the Profit before tax figures shown)?

(A)) £62 million
(B)) £46 million
(C)) £26 million
(D)) £25 million
(E)) Can't tell from data

Step 1 *– Calculate the corporation tax payable for each competitor*
Competitor A = 90 x 22% = 19.8
Competitor B = 112 x 22% = 24.6
Competitor C = 117 x 15% = 17.6

Step 2 *– Calculate the total corporation tax payable*
19.8 + 24.6 + 17.6 = £62 million

Thus the correct answer is (A) £62 million

NUMERICAL REASONING TEST 3

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

Tze Motor Cars - Accounts (2006-2010)

	2010	2009	2008	2007	2006
Sales	£1,047.9 m	£761.9 m	£1,005.0 m	£627.7 m	£637.8 m
Car units sold	16,710	12,636	15,905	12,163	12,360
Average sales price (per car)	£62,709	£60,296	£63,188	£51,607	£51,602
Average production cost (per car)	£14,500	£15,800	£13,600	£11,400	£13,750
Annual service charge per car	£250	£300	£350	£275	£400

Q1 In which year was there the highest ratio of average sales price: average production cost?

(A) 2006
(B) 2007
(C) 2008
(D) 2009
(E) 2010

Step 1 *- Calculate the ratio for each of the 5 years shown:*

	2010	*2009*	*2008*	*2007*	*2006*
Average sales price	*£62,709*	*£60,296*	*£63,188*	*£51,607*	*£51,602*
Production cost	*£14,500*	*£15,800*	*£13,600*	*£11,400*	*£13,750*
Ratio	*4.3:1*	*3.8:1*	*4.6:1*	*4.5:1*	*3.8:1*

Thus the correct answer is (C) 2008

Tze Motor Cars - Accounts (2006-2010)

	2010	2009	2008	2007	2006
Sales	£1,047.9 m	£761.9 m	£1,005.0 m	£627.7 m	£637.8 m
Car units sold	16,710	12,636	15,905	12,163	12,360
Average sales price (per car)	£62,709	£60,296	£63,188	£51,607	£51,602
Average production cost (per car)	£14,500	£15,800	£13,600	£11,400	£13,750
Annual service charge per car	£250	£300	£350	£275	£400

Q2 What were the total production costs for 2009 (to the nearest £100,000)?

(A)) £199.6 million
(B)) £199.8 million
(C)) £216.2 million
(D)) £216.3 million
(E)) £242.2 million

Step 1 *- Production costs = production cost per car x number of cars*
= £15,800 x 12,636 = £199.648 million
= £199.6 million (to the nearest £100,000)

Thus the correct answer is (A) £199.6 million

Tze Motor Cars - Accounts (2006-2010)

	2010	2009	2008	2007	2006
Sales	£1,047.9 m	£761.9 m	£1,005.0 m	£627.7 m	£637.8 m
Car units sold	16,710	12,636	15,905	12,163	12,360
Average sales price (per car)	£62,709	£60,296	£63,188	£51,607	£51,602
Average production cost (per car)	£14,500	£15,800	£13,600	£11,400	£13,750
Annual service charge per car	£250	£300	£350	£275	£400

Q3 If the dealer paid upfront for the annual service charge of each car sold, in which year would this have cost the dealer the least amount?

(A) 2006
(B) 2007
(C) 2008
(D) 2009
(E) 2010

Step 1 *- Calculate the cost to the dealer for each of the 5 years as shown:*

	2010	*2009*	*2008*	*2007*	*2006*
Car units sold	*16,710*	*12,636*	*15,905*	*12,163*	*12,360*
Service charge	*£250*	*£300*	*£350*	*£275*	*£400*
Cost to car manufacturer	*£4.18 million*	*£3.79 million*	*£5.57 million*	*£3.34 million*	*£4.94 million*

Thus the correct answer is (B) 2007

Tze Motor Cars - Accounts (2006-2010)

	2010	2009	2008	2007	2006
Sales	£1,047.9 m	£761.9 m	£1,005.0 m	£627.7 m	£637.8 m
Car units sold	16,710	12,636	15,905	12,163	12,360
Average sales price (per car)	£62,709	£60,296	£63,188	£51,607	£51,602
Average production cost (per car)	£14,500	£15,800	£13,600	£11,400	£13,750
Annual service charge per car	£250	£300	£350	£275	£400

Q4 If the average sales price for 2010 was 5% higher, but the number of cars sold that year was 9% lower, by what percent would the sales revenue have decreased for 2010?

(A) No change
(B) 3.50%
(C) 3.55%
(D) 4.45%
(E) 4.60%

Step 1 *– Calculate the new average sales price*
£62,709 x 105% = £65,844.45

Step 2 *– Calculate the new number of cars sold*
16,710 x 91% = 15,206.1

Note*: They can't sell.1 of a car so we will use 15,206.0. In this question it doesn't actually make a difference to the final answer but it's worth remembering things like this for other questions.*

Step 3 *– Calculate the total sales increase*
£65,844.45 x 15,206 = £1,001.230707 million

Step 4 *– Calculate the total sales decrease as a %*
1,001.230707 ÷ 1,047.9 = 0.95546, which is a 4.45% decrease.

Thus the correct answer is (D) 4.45%

Tze Motor Cars - Accounts (2006-2010)

	2010	2009	2008	2007	2006
Sales	£1,047.9 m	£761.9 m	£1,005.0 m	£627.7 m	£637.8 m
Car units sold	16,710	12,636	15,905	12,163	12,360
Average sales price (per car)	£62,709	£60,296	£63,188	£51,607	£51,602
Average production cost (per car)	£14,500	£15,800	£13,600	£11,400	£13,750
Annual service charge per car	£250	£300	£350	£275	£400

Q5 In 2008, car sales were split across 3 equally-priced models in the ratio of 7:8:6 for models A, B and C respectively. What was the sales revenue for model A?

(A)) £287 million
(B)) £335 million
(C) £382 million
(D)) £383 million
(E)) Can't tell from data

Step 1 *- Apply the ratio to the total sales for 2008*
7 x £1,005.0 m / 21 = £335 million.

Note*: we can answer this question because we are told that the three models were equally priced. If we were not told this information we would have to answer "cannot tell".*

Thus the correct answer is (B) £335 million

YLF plc – Total costs by year (£000s)

	2006	2007	2008	2009	2010
Staff costs	226	234	248	230	215
Property depreciation	120	117	112	115	132
Inventories	11,410	12,505	11,842	15,322	16,420
Loan impairment	13	12	9	17	22
Other expenses	336	459	357	413	502

Q6 For how many years has the combined cost of Property depreciation and Staff costs exceeded that of Other expenses?

(A)) 1 year
(B) 2 years
(C)) 3 years
(D)) 4 years
(E)) 5 years

Step 1 *– Calculate each year's combined cost of Property depreciation and Staff costs*

	2006	***2007***	***2008***	***2009***	***2010***
Staff costs + Property depreciation	*226 + 120 = 346*	*234 + 117 = 351*	*248 + 112 = 360*	*230 + 115 = 345*	*215 + 132 = 347*
Step 2 *> or < Other expenses?*					
	> 336	*< 459*	*> 357*	*< 413*	*< 502*

Thus the correct answer is (B) 2 years

YLF plc – Total costs by year (£000s)

	2006	2007	2008	2009	2010
Staff costs	226	234	248	230	215
Property depreciation	120	117	112	115	132
Inventories	11,410	12,505	11,842	15,322	16,420
Loan impairment	13	12	9	17	22
Other expenses	336	459	357	413	502

Q7 In which year, or years, was there a 2:1 ratio of Staff costs: Property depreciation?

(A) 2010
(B) 2007 and 2008
(C) 2008 and 2009
(D) 2007 and 2009
(E) 2006, 2007 and 2009

Step 1 *- This can probably be done in your head: go along the columns and double the Property depreciation to see if it equals the Staff costs. You will see this is true for years 2007 and 2009.*

In long-hand tabular form we have for each year:

	2006	*2007*	*2008*	*2009*	*2010*
Staff costs/ Property depreciation	*226/120*	*234/117*	*248/112*	*230/115*	*215/132*
Ratio	*>2*	*2*	*>2*	*2*	*<2*

Thus the correct answer is (D) 2007 and 2009

YLF plc – Total costs by year (£000s)

	2006	2007	2008	2009	2010
Staff costs	226	234	248	230	215
Property depreciation	120	117	112	115	132
Inventories	11,410	12,505	11,842	15,322	16,420
Loan impairment	13	12	9	17	22
Other expenses	336	459	357	413	502

Q8 What percent of total costs did Property depreciation represent in 2007?

(A) 4.7%
(B) 3.7%
(C) 2.7%
(D) 1.9%
(E) 0.9%

Tip*: Notice the top of the table tells us we are looking at "Total costs by year". This enables us to answer the question. If we were not told the costs given are the whole picture (i.e. Total costs) we would be right to say "cannot say" since we would not know if there are other costs we don't know about. Watch out for this in other questions.*

Step 1 *– Calculate total costs*
234 + 117 + 12,505 + 12 + 459 = 13,327

Step 2 *- Calculate Property depreciation as a % of total costs*
117 / 13,327 = 0.878%

Thus the correct answer is (E) 0.9%

YLF plc – Total costs by year (£000s)

	2006	2007	2008	2009	2010
Staff costs	226	234	248	230	215
Property depreciation	120	117	112	115	132
Inventories	11,410	12,505	11,842	15,322	16,420
Loan impairment	13	12	9	17	22
Other expenses	336	459	357	413	502

Q9 Which cost changed by the second largest percent from 2008 to 2010?

(A)) Other expenses
(B) Staff costs
(C)) Loan impairment
(D) Inventories
(E) Property depreciation

Step 1 *– Calculate the % change for each of the 6 costs between the years 2008 to 2010.*

Staff costs	*215 / 248 = 0.867 ; 13.3% decrease*
Property depreciation	*132 / 112 = 1.179 ; 17.9% increase*
Inventories	*16,420 / 11,842 = 1.387 ; 38.7% increase*
Loan impairment	*22 / 9 = 2.44 ; 144.4% increase*
Other expenses	*502 / 357 = 1.406 ; 40.6% increase*

Note: *be careful to note the question asks for "the second largest". It is a common mistake to overlook this and select the largest increase.*

Thus the correct answer is (A) Other expenses

YLF plc – Total costs by year (£000s)

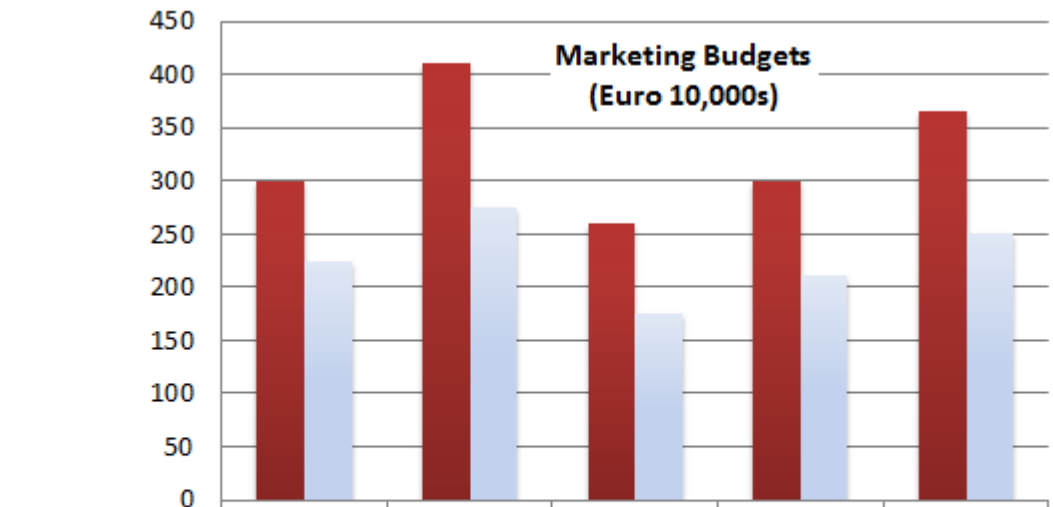
	2006	2007	2008	2009	2010
Staff costs	226	234	248	230	215
Property depreciation	120	117	112	115	132
Inventories	11,410	12,505	11,842	15,322	16,420
Loan impairment	13	12	9	17	22
Other expenses	336	459	357	413	502

Q10 If the 2006 Inventories cost had increased by an eighth compared to the previous year, what was the previous year's Inventories cost (to the nearest £10,000)?

(A)) £10.41 million
(B)) £10.14 million
(C)) £1.04 million
(D)) £1.01 million
(E)) Can't tell from data

Step 1 *- To increase by an eighth (12.5%) we simply multiply by 1.125. So we can say (previous year's Inventory costs) x 1.125 = £11,410. Rearranging we have previous year's inventory costs = (£11,410 ÷ 1.125) = £10,142,222*

Thus the correct answer is (B) £10.14 million



	Brand A	Brand B	Brand C	Brand D	Brand E
Budget 2010	300	410	260	300	365
Budget 2011	225	275	175	210	250

Exchange rate: £ = €1.2

Q11 Between 2010 and 2011 what is the total cut in the marketing budget across the 5 Brands combined (in €10,000s)?

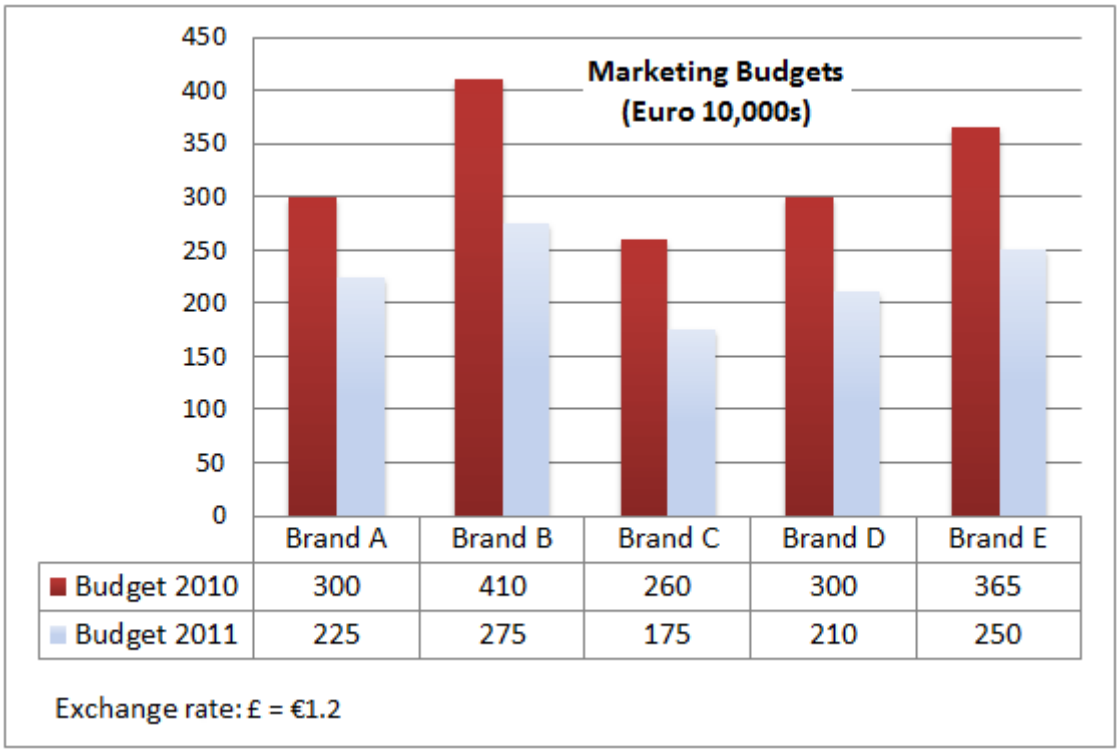
(A) 135
(B) 400
(C) 500
(D) 1,135
(E) 1,535

Step 1 *– Calculate the 2010 total marketing budget*
300 + 410 + 260 + 300 + 365 = 1635

Step 2 *– Calculate the 2011 total marketing budget*
225 + 275 + 175 + 210 + 250 = 1135

Step 3 *– Calculate cut*
2010 marketing budget – 2011 marketing budget = 1635 – 1135 = 500 (in €10,000s)

Thus the correct answer is (C) 500

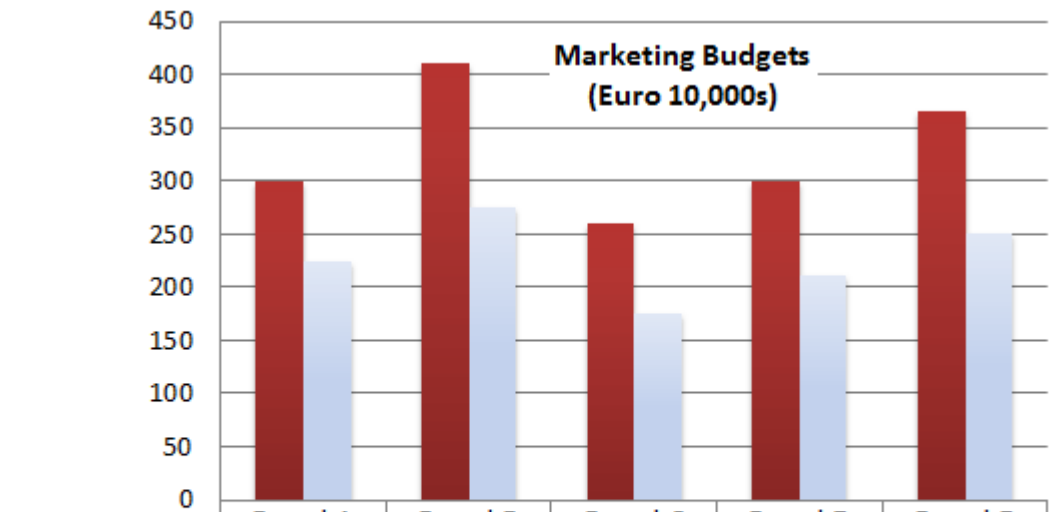


Q12 Which Brand has suffered the largest percentage cut in its Marketing Budget?

(A) Brand A
(B) Brand B
(C) Brand C
(D) Brand D
(E) Brand E

Step 1 *- Calculate the % cut for each branch from 2010 to 2011:*
Brand A = 75/300 x 100% = 25%
Brand B = 135/410 x100% = 32.9%
Brand C = 85/260 x 100% = 32.7%
Brand D = 90/300 x 100% = 30%
Brand E = 115/365 x 100% = 31.5%

Thus the correct answer is (B) Brand B



	Brand A	Brand B	Brand C	Brand D	Brand E
Budget 2010	300	410	260	300	365
Budget 2011	225	275	175	210	250

Exchange rate: £ = €1.2

Q13 Between 2010 and 2011 what has been the mean percentage Budget reduction for each of the 5 Brands (to 1 decimal place)?

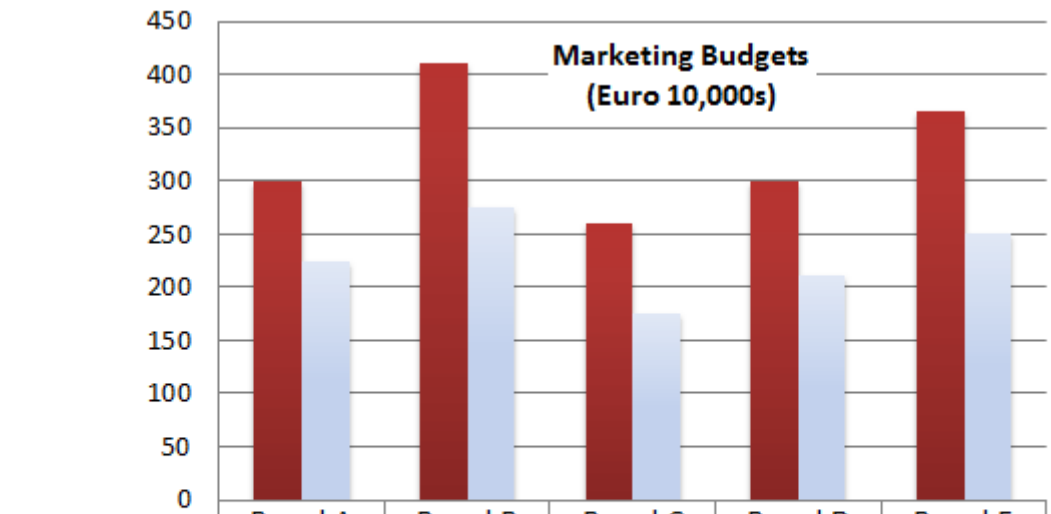
(A) 30.4%
(B) 30.5%
(C) 31.4%
(D) 31.5%
(E) 32.4%

Step 1 *- Calculate the % cut for each Brand. If you still have your notes from the previous question you can re-use those to save time:*
Brand A = 75/300 x 100 = 25%
Brand B = 135/410 x100 = 32.9%
Brand C = 85/260 x 100 = 32.7%
Brand D = 90/300 x 100 = 30%
Brand E = 115/365 x 100 = 31.5%

Step 2 *– Calculate mean reduction.*
(25 + 32.9 + 32.7 + 30 + 31.5)/5 = 30.42%

Step 3 *– Calculate answer to 1 decimal place*
30.4%

Thus the correct answer is (A) 30.4%



	Brand A	Brand B	Brand C	Brand D	Brand E
Budget 2010	300	410	260	300	365
Budget 2011	225	275	175	210	250

Exchange rate: £ = €1.2

Q14 Brand A and Brand D are to have their number of staff reduced by the same percentage reduction seen by their Marketing Budgets between 2010 and 2011. If the number of staff at Brand A was originally 120 and the number of staff at Brand D triple this, what are the new reduced staff numbers for each Brand?

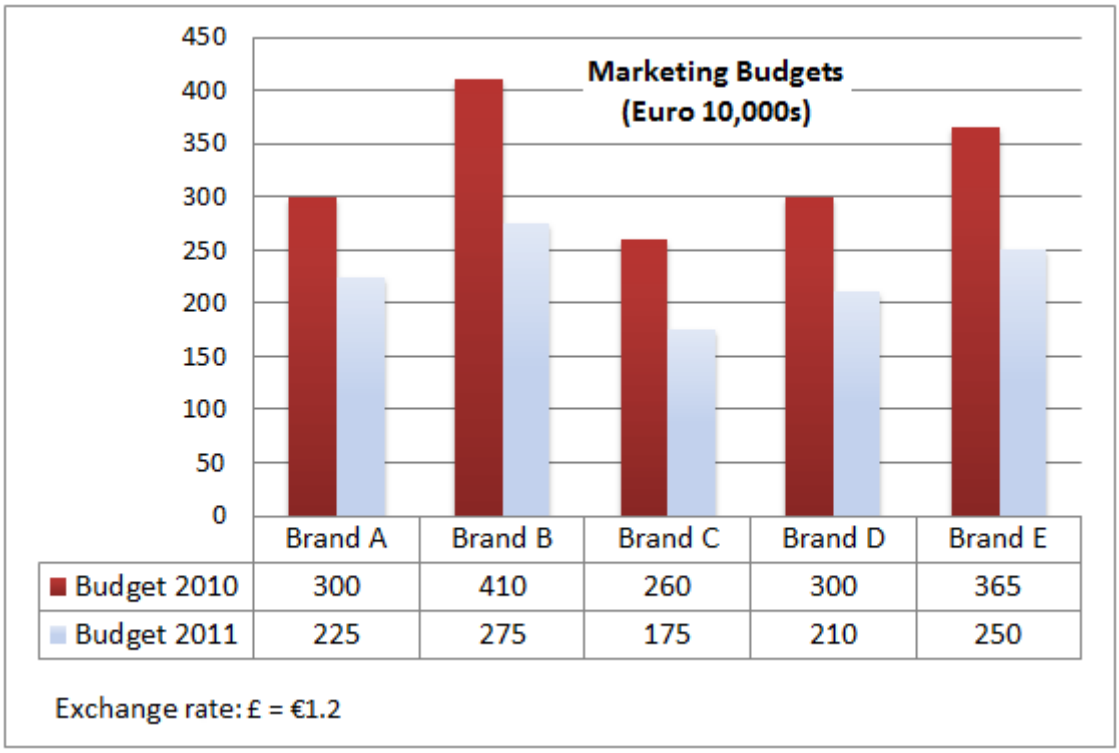
(A)) Can't tell from the data
(B)) 35 (Brand A); 142 (Brand D)
(C) 90 (Brand A); 252 (Brand D)
(D)) 60 (Brand A); 240 (Brand D)
(E)) 50 (Brand A); 360 (Brand D)

Step 1 *– Calculate the percentage reduction in Marketing Budget for each Brand.*
Brand A: 225 / 300 = 25% reduction
Brand D: 210 / 300 = 30% reduction

Step 2 *– Calculate the new number of staff for Brand A*
120 x 0.75% = 90

Step 3 *– Calculate the new number of staff for Brand D*
(120 x 3) x 0.7 = 252

Thus the correct answer is (C) 90 (Brand A); 252 (Brand D)



Q15 The total 2011 Marketing Budget for all five Brands is to be cut by a quarter in 2012. In £, what is the 2012 Marketing Budget? (to the nearest £100,000)?

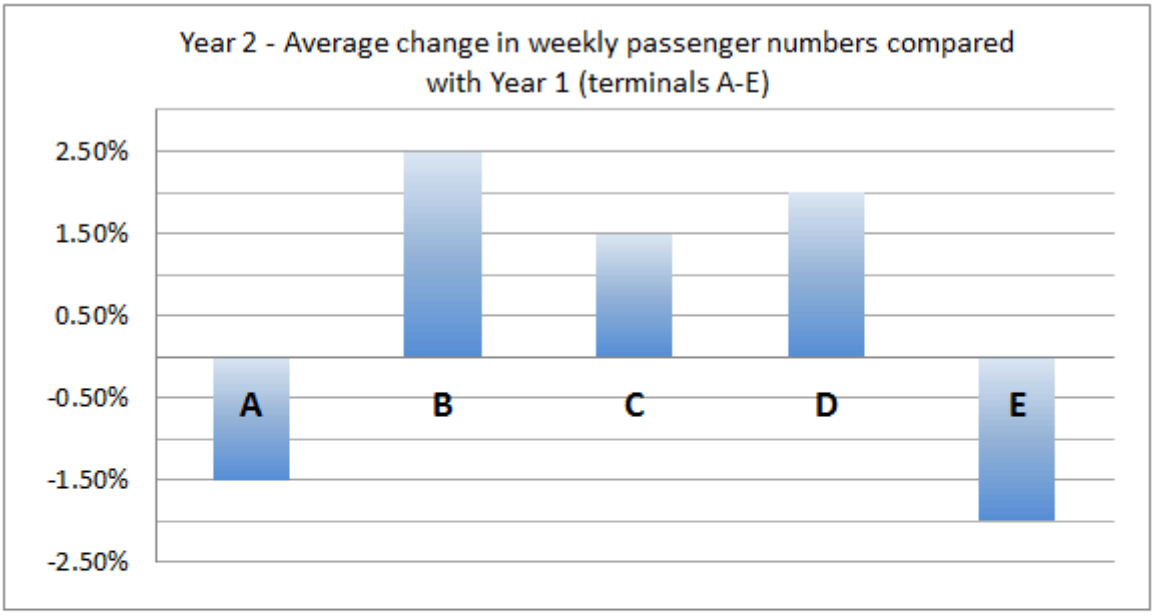
(A)) £3 million
(B)) £3.1 million
(C)) £5.2 million
(D)) £6.2 million
(E)) £7.1 million

Step 1 *– Calculate the 2012 marketing budget*
2011 marketing budget (from previous question) = 1135 (€10,000s)
2012 marketing budget = €11.35 million x 75% = €8.5125 million

Step 2 *– Convert into £*
8,512,500 / 1.2 = £7.094 million

Step 3 *– Put answer into the nearest £100,000*
£7.1 million

Thus the correct answer is (E) £7.1 million



Year 1 - Average number of passengers per week (1,000s)

All Terminals	A	B	C	D	E
Male passengers	52.9	66.6	62.9	77.1	78.8
Female passengers	52.7	66.5	63.1	76.9	78.5

Q16 Which terminal had the highest number of passengers per week in Year 2?

(A) Terminal A
(B) Terminal B
(C) Terminal C
(D) Terminal D
(E) Terminal E

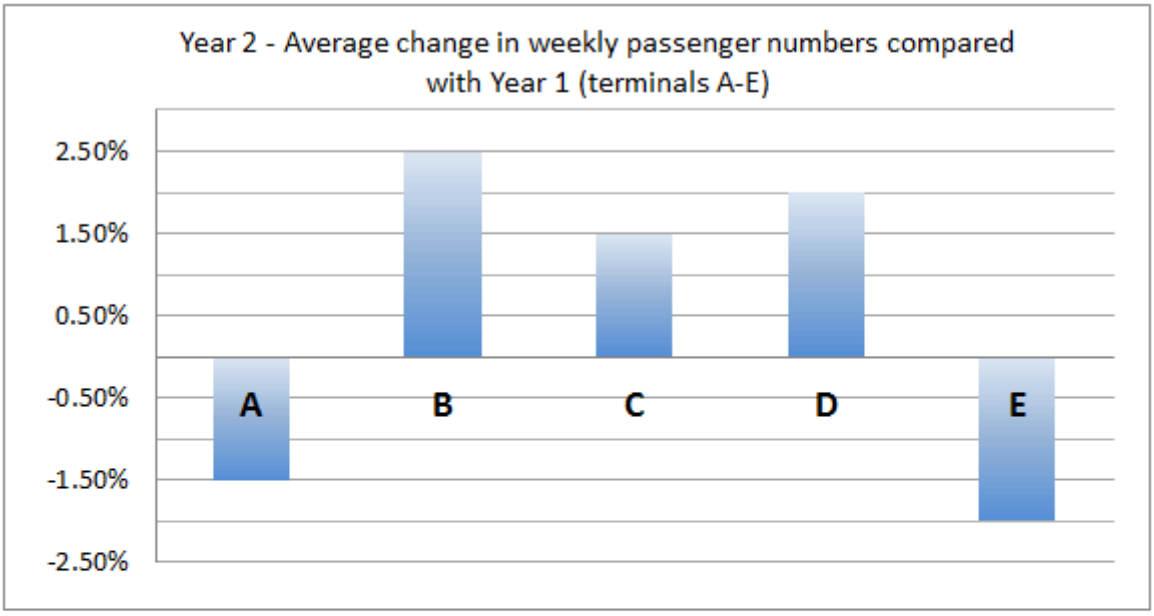
The information that you need is shown in both the table and the graph.

Step 1 *- Given Year 2's 1.5-2.5% increases in passenger numbers, save time by considering only which terminals have the highest number of passengers per week in Year 1. This is Terminal D and E.*

Step 2 *- Calculate Year 1's total passengers for Terminals D and E (by adding male and female passenger numbers):*
Terminal D = 77.1 + 76.9 = 154
Terminal E = 78.8 + 78.5 = 157.3

Step 3 *- Calculate Year 2's totals for these Terminals:*
Terminal D = 154 x 102% = 157.08
Terminal E = 157.3 x 98% = 154.15

Thus the correct answer is (D) Terminal D



Year 1 - Average number of passengers per week (1,000s)

All Terminals	A	B	C	D	E
Male passengers	52.9	66.6	62.9	77.1	78.8
Female passengers	52.7	66.5	63.1	76.9	78.5

Q17 For Year 1 what was the average weekly difference between male and female passengers per terminal?

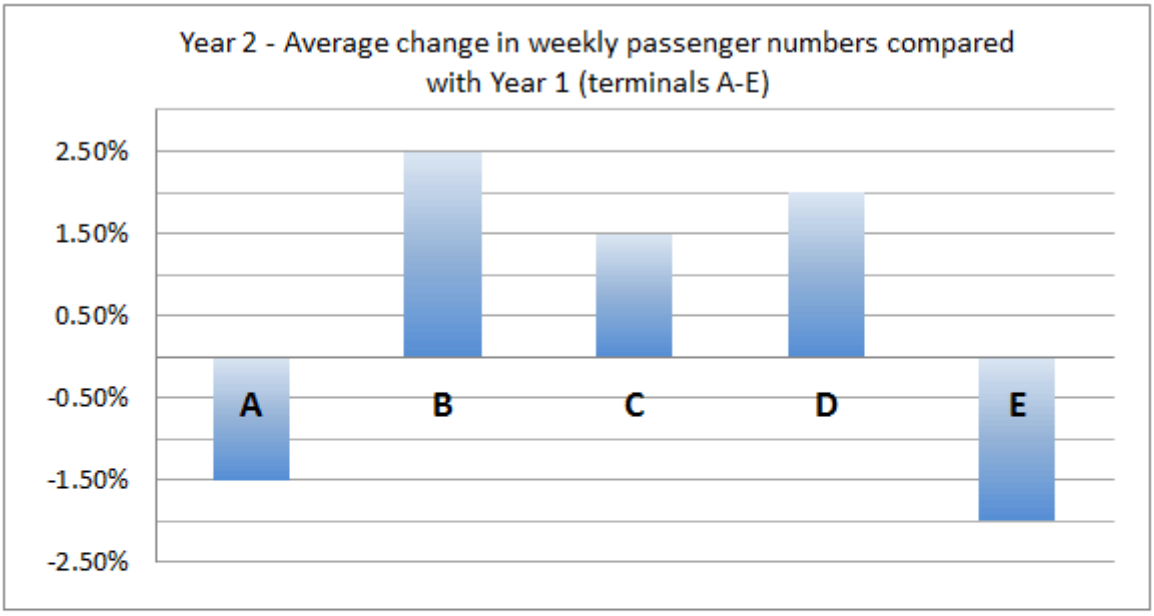
(A)) 2,200 more males
(B)) 1,200 more males
(C)) 220 more females
(D)) 140 more females
(E)) 120 more males

The information that you need is shown in the table.

Step 1 *– Calculate the total difference between the weekly numbers of male and female passengers*
Total Male = 338.3
Total Female = 337.7
Difference (in 1,000s) = 0.6

Step 2 *– Calculate the average difference per terminal*
= 0.6 / 5 (1,000s)
= 0.12 (1,000s)
= 120 more male passengers

Thus the correct answer is (E) 120 more males



Year 1 - Average number of passengers per week (1,000s)

All Terminals	A	B	C	D	E
Male passengers	52.9	66.6	62.9	77.1	78.8
Female passengers	52.7	66.5	63.1	76.9	78.5

Q18 Terminals A and D serve domestic flights, whilst Terminals B, C and E serve international flights. Each week on average how many more passengers in Year 1 took international flights compared to domestic flights (to the nearest 10,000)?

(A) 14,000
(B) 15,000
(C) 140,000
(D) 150,000
(E) 160,000

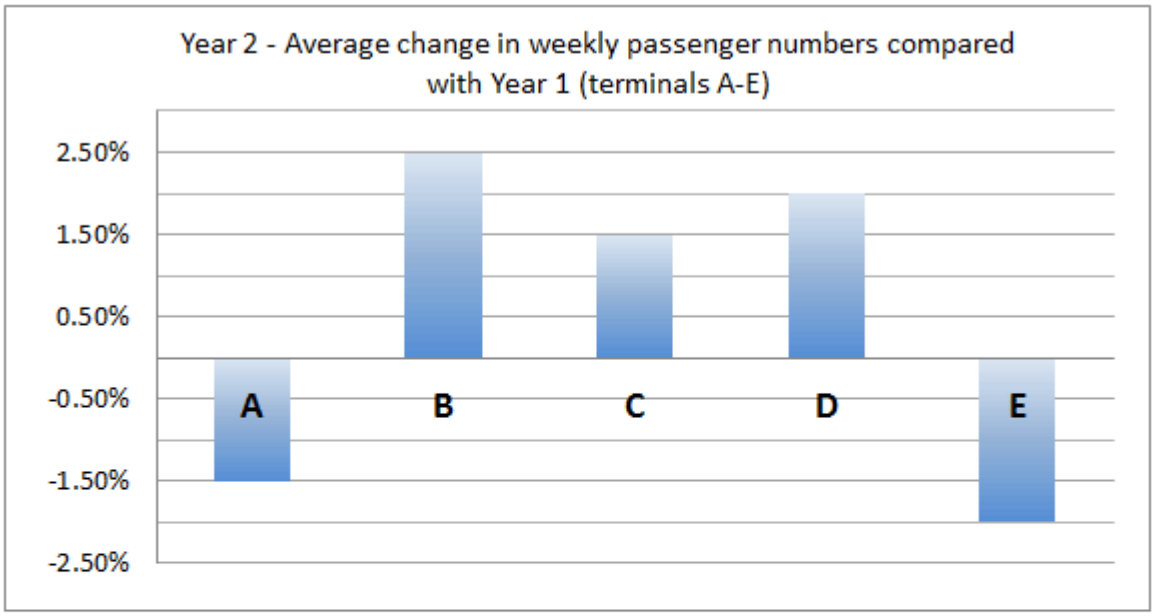
The information that you need is shown in the table.

Step 1 *– Calculate the total numbers of domestic flights and international flights*
Domestic flight total = 52.9 + 52.7 + 77.1 + 76.9 = 259.6
International flight total = 66.6 + 66.5 + 62.9 + 63.1 + 78.8 + 78.5 = 416.4

Step 2 *– Calculate the difference*
416.4 - 259.6 = 156.8 (1,000's)
= 156,800

Step 3 *- To the nearest 10,000*
160,000

Thus the correct answer is (E) 160,000



Year 1 - Average number of passengers per week (1,000s)

All Terminals	A	B	C	D	E
Male passengers	52.9	66.6	62.9	77.1	78.8
Female passengers	52.7	66.5	63.1	76.9	78.5

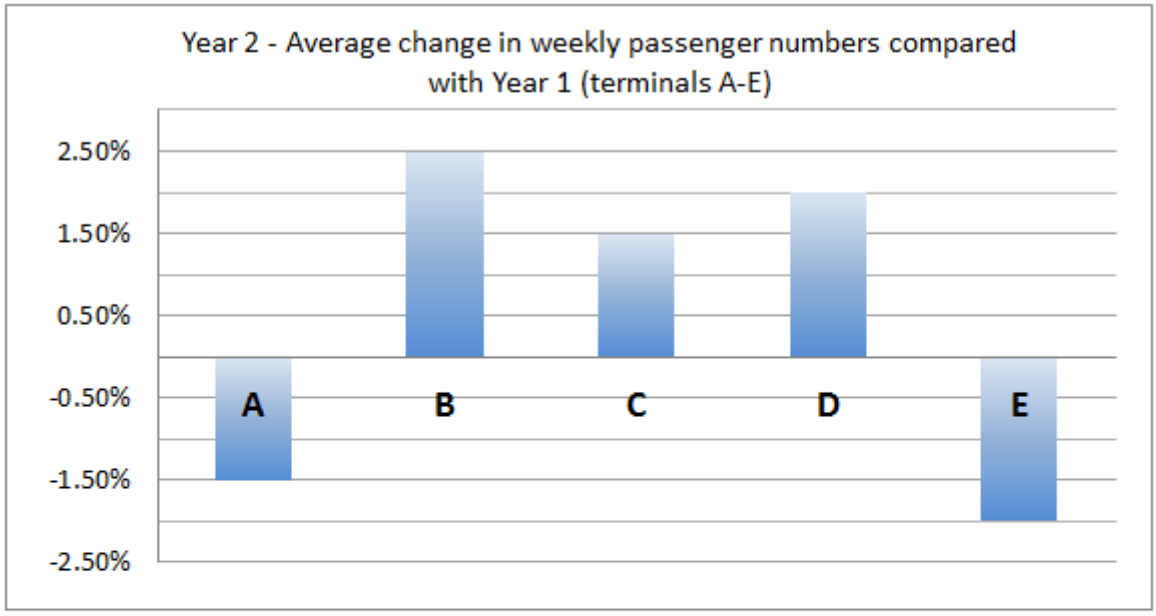
Q19 In Year 2 each passenger spends on average £4.25 in Terminal C's shops. How much is the average weekly revenue for Terminal C's shops in Year 2 (to the nearest £10,000)?

(A) £4,400,000
(B) £540,000
(C) £54,000
(D) £46,000
(E) £44,000

Step 1 *– Calculate Year 2 passenger total for Terminal C*
(62.9 + 63.1) x 101.5% = 127.89
In 1,000s this is = 127,890

Step 2 *– Calculate the average weekly revenue generated*
127,890 x £4.25 = £543,532.5 (£540,000 to the nearest £10,000)

Thus the correct answer is (B) £540,000



Year 1 - Average number of passengers per week (1,000s)

All Terminals	A	B	C	D	E
Male passengers	52.9	66.6	62.9	77.1	78.8
Female passengers	52.7	66.5	63.1	76.9	78.5

Q20 A competitor airport operator called Vefy Flights operates a different airport with half the average Year 1 weekly number of passengers operating from 3 terminals. What is Vefy Flights's average weekly number of passengers per terminal (to the nearest 1,000)?

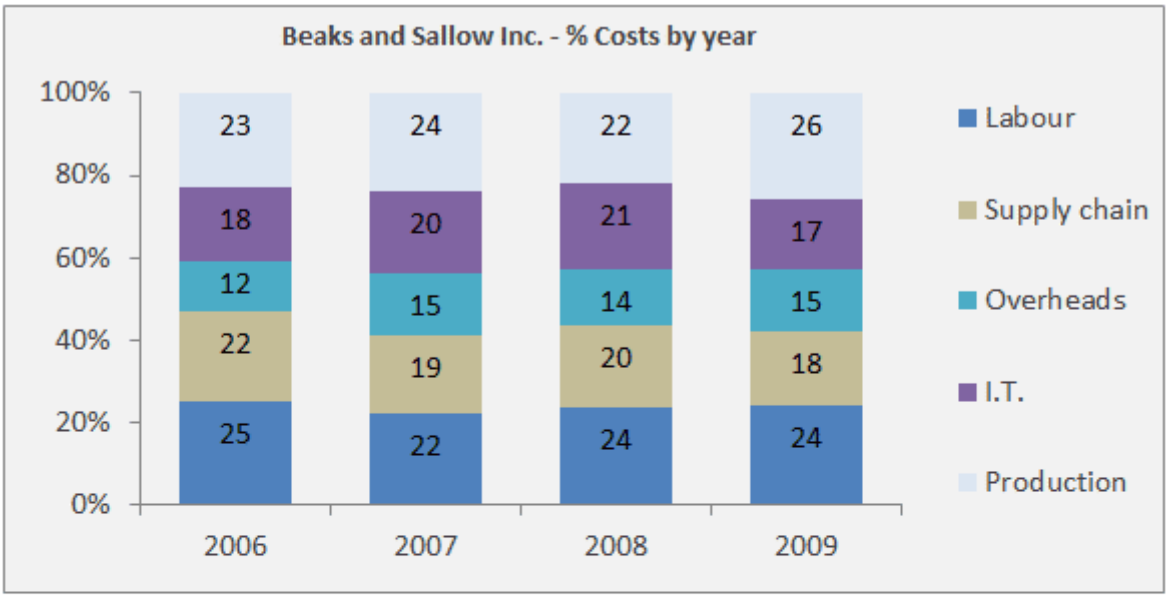
(A) 110,000
(B) 113,000
(C) 133,000
(D) 142,000
(E) 150,000

Step 1 *– Calculate the total number of Terminal A-E passengers.*
Total number of Terminal A-E passengers = 676.

Step 2 *- Calculate Vefy Flights's average weekly number of passengers*
676 x 0.5 = 338

Step 3 *– Calculate Vefy Flights's average weekly number of passengers per terminal*
338 / 3 = 112.667 (1,000's)
= 112,667
= 113,000 (to the nearest 1,000)

Thus the correct answer is (B) 113,000



2010 Total Costs (£10,000s)	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Overheads	104	105	102	101
Supply chain	186	174	162	166
Labour	248	245	319	265
I.T.	149	138	140	191
Production	227	253	291	287

Q21 If the total 2010 costs represent a 5% increase on the total 2009 costs, what were the total 2009 costs (to the nearest £million)?

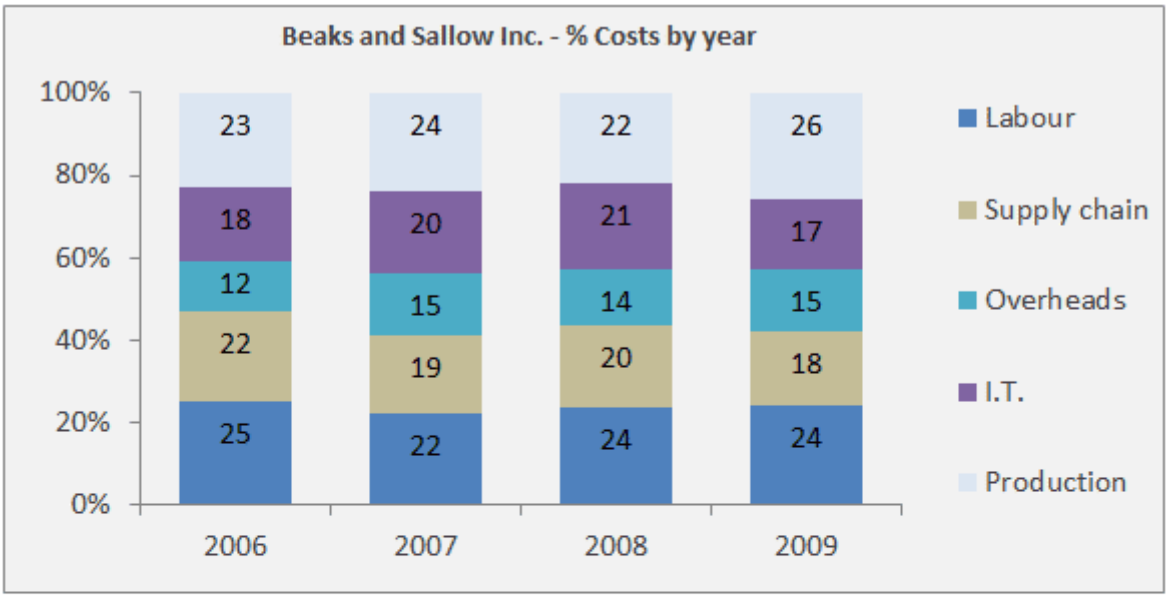
(A)) £3 million
(B)) £4 million
(C)) £36 million
(D)) £37 million
(E)) £38 million

The information for 2010 that you need is shown in the table.
Step 1 *– Calculate the total costs for 2010*
Q1 total = 914
Q2 total = 915
Q3 total = 1,014
Q4 total = 1,010
Total = 3,853

Step 2 *– Calculate the total costs for 2009*
3,853 = 105% x (2009 total costs)
2009 total costs = 3,853 / 1.05 = 3,669

Step 3 *- To the nearest £million*
3,669 (£10,000s) = £37 million

Thus the correct answer is (D) £37 million



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Overheads	104	105	102	101
Supply chain	186	174	162	166
Labour	248	245	319	265
I.T.	149	138	140	191
Production	227	253	291	287

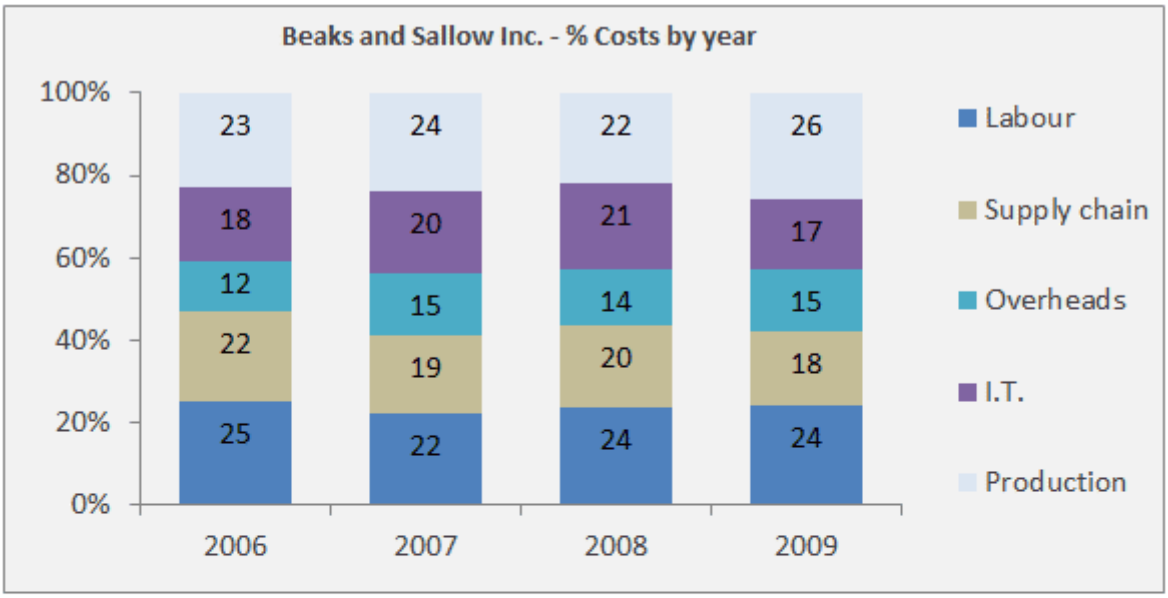
Q22 Which cost or costs on their own represented more than 17% of the total costs in 2010?

(A)) Labour and Production
(B) Supply chain and I.T.
(C)) Labour and Supply chain
(D) Supply chain, Labour and Production
(E) Supply chain, Labour, Production and I.T.

The information that you need is shown in the table.
Step 1 *– Calculate the total cost across the 4 quarters for 2010*
Q1 total = 914
Q2 total = 915
Q3 total = 1,014
Q4 total = 1,010
2010 Total costs = 3,853

Step 2 *– Calculate the % that each individual cost represented*
Overheads = (104 + 105 + 102 + 101) / 3,853 = 10.7%
Supply chain = (186 + 174 + 162 + 166) / 3,853 = 17.9%
Labour = (248 + 245 + 319 + 265) / 3,853 = 28.0%
I.T. = (149 + 138 + 140 + 191) / 3,853 = 16.0%
Production = (227 + 253 + 291 + 287) / 3,853 = 27.4%

Thus the correct answer is (D) Supply chain, Labour and Production



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Overheads	104	105	102	101
Supply chain	186	174	162	166
Labour	248	245	319	265
I.T.	149	138	140	191
Production	227	253	291	287

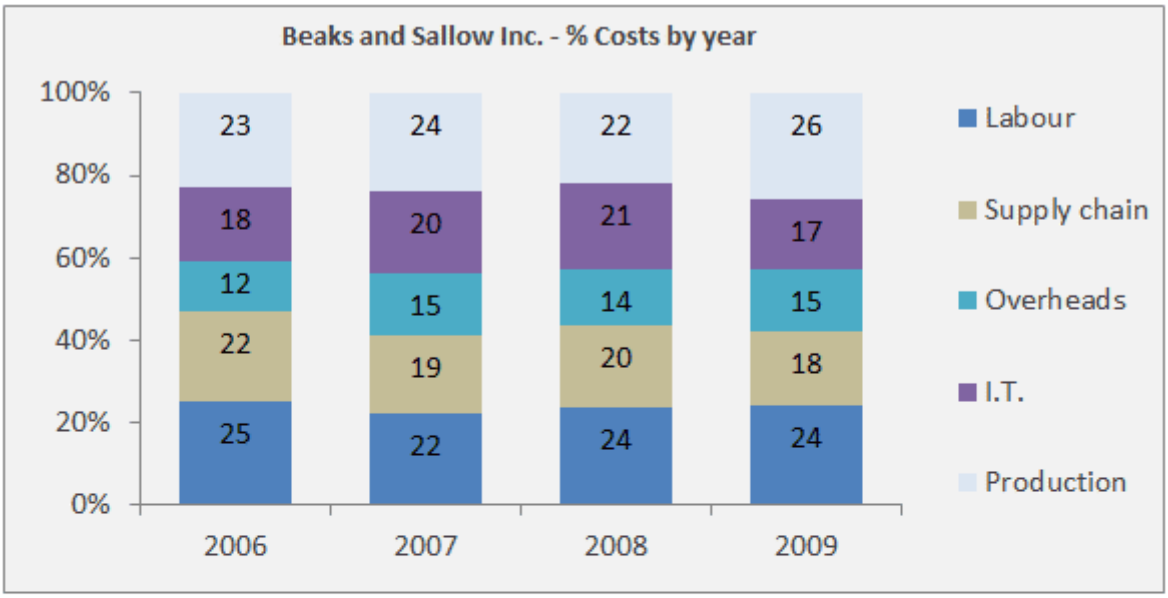
Q23 In which of the years shown was there a 3:2 ratio of IT to Overheads costs?

(A) Cannot Say
(B) 2006 and 2007
(C) 2006, 2008 & 2010
(D) 2007, 2008 & 2010
(E) 2008 and 2009

The information that you need is shown in the graph and table.

Step 1 *- Calculate the ratio of IT: Overheads costs for each of the 5 years shown:*
2006: 18%:12% = 3:2
2007: 20%:15% = 4:3
2008: 21%:14% = 3:2
2009: 17%:15% = 1.13
2010: 618: 412 = 3:2

Thus the correct answer is (C) 2006, 2008 & 2010



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Overheads	104	105	102	101
Supply chain	186	174	162	166
Labour	248	245	319	265
I.T.	149	138	140	191
Production	227	253	291	287

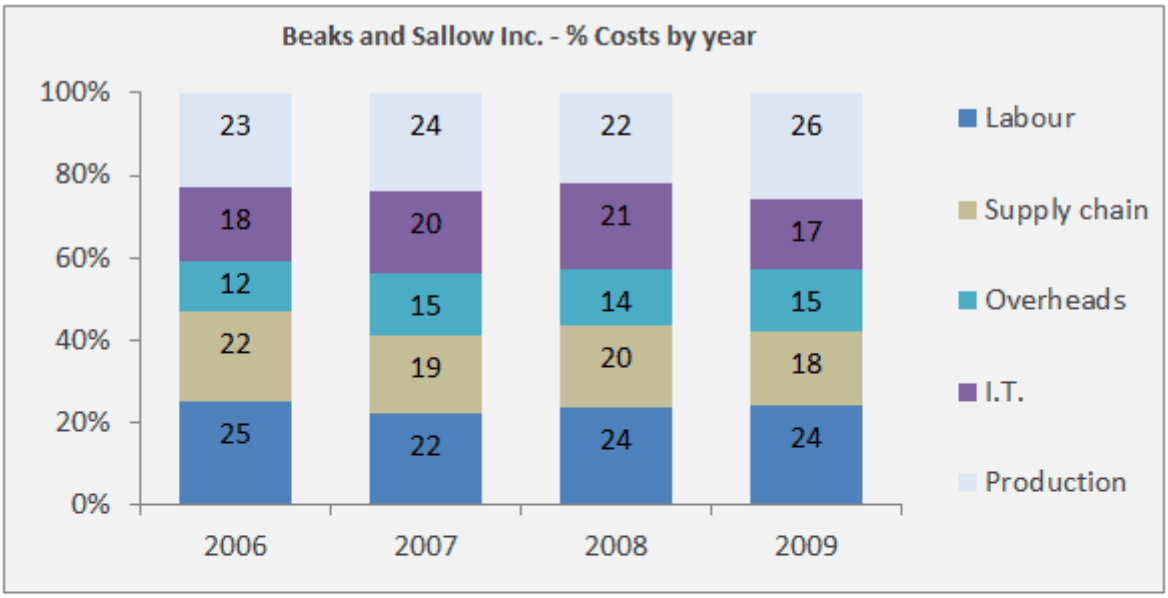
Q24 If 2009's total costs were £250,000, what were the Production costs?

(A) £80,000
(B) £75,000
(C) £70,000
(D) £65,000
(E) £60,000

The information that you need is shown in the graph.

Step 1 *- Production costs = 26% = £250,000 x 26% = £65,000*

Thus the correct answer is (D) £65,000



2010 Total Costs (£10,000s)	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Overheads	104	105	102	101
Supply chain	186	174	162	166
Labour	248	245	319	265
I.T.	149	138	140	191
Production	227	253	291	287

Q25 If the costs are put into order of decreasing size, in which two years is the order the same?

(A) 2006 and 2007
(B) 2006 and 2008
(C) 2006 and 2010
(D) 2007 and 2008
(E) 2007 and 2009

Step 1 *- Put each year's costs into size order:*

2006 = Labour, Production, Supply Chain, IT, Overheads
2007 = Production, Labour, IT, Supply Chain, Overheads
2008 = Labour, Production, IT, Supply Chain, Overheads
2009 = Production, Labour, Supply Chain, IT, Overheads

Tip: *at this stage you could see that none of the years match so given that there is no "none of these" option you could gamble that 2010 will have the same order as one of the others, and thus go for answer (C).*

Step 2 *- Carrying on for the remaining year:*
2010 = Labour (1,077), Production (1,058), Supply Chain (688), IT (618), Overheads (412)

Thus the correct answer is (C) 2006 and 2010

UK Tourist data				
Country of origin	Annual Number of Tourists (1000s)	Total Spending (million)	Average Family Length of Stay (days)	Average Family Spend (£ per day)
Australia	2,200	435	5.2	236
Spain	1,300	410	2.8	116
Germany	660	380	4.6	148
U.S.A.	830	350	6.2	244
Italy	550	283	3.8	164

Q26 On average, families from which country of origin spend the most during a typical stay?

(A) Australia
(B) Spain
(C)) Germany
(D)) U.S.A.
(E) Italy

Step 1 *- Multiply each country of origin's Average Family Length of Stay by Average Family Spend*

Australia = 5.2 x 236 = 1,227.2
Spain = 2.8 x 116 = 324.8
Germany = 4.6 x 148 = 680.8
U.S.A = 6.2 x 244 = 1,512.8
Italy = 3.8 x 164 = 623.2

Thus the correct answer is (D) U.S.A.

UK Tourist data				
Country of origin	Annual Number of Tourists (1000s)	Total Spending (million)	Average Family Length of Stay (days)	Average Family Spend (£ per day)
Australia	2,200	435	5.2	236
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U.S.A.	830	350	6.2	244
Italy	550	283	3.8	164

Q27 On average, families from which of the countries shown spend the most and the least per typical stay?

(A)) Can't tell from the data
(B)) U.S.A. (most); Italy (least)
(C)) U.S.A. (most); Spain (least)
(D) Australia (most); Italy (least)
(E) Australia (most); Spain (least)

Step 1 *– For each country of origin, calculate the amount spent per family by multiplying the Average Family Length of Stay by Average Family Spending. This question is very similar to the previous question so you can use those workings if you still have them.*

Australia = 5.2 x 236 = £1,227.20
Spain = 2.8 x 116 = £324.80
Germany = 4.6 x 148 = £680.80
U.S.A = 6.2 x 244 = £1,512.80
Italy = 3.8 x 164 = £623.20

Thus the correct answer is (C) U.S.A. (most); Spain (least)

UK Tourist data				
Country of origin	Annual Number of Tourists (1000s)	Total Spending (million)	Average Family Length of Stay (days)	Average Family Spend (£ per day)
Australia	2,200	435	5.2	236
Spain	1,300	410	2.8	116
Germany	660	380	4.6	148
U.S.A.	830	350	6.2	244
Italy	550	283	3.8	164

Q28 Which of the following statements is True?

(A) The ratio of German:Spanish tourists is 1:2
(B) There are fewer Spanish tourists than German and Italian tourists combined
(C) German families have the longest average length of stay
(D) Total German tourist spending is more than 92% of Total Spanish tourist spending
(E) There are over 4 times as many Australian tourists as Italian tourists

Step 1 *- Go through each answer option to determine if it is True, as follows*

The ratio of German:Spanish tourists is 1:2:
660:1300 = 33:65
So False

There are less Spanish tourists than German and Italian tourists combined:
1,300 (Spanish tourists) > 660 + 550 (German and Italian tourists combined)
So False

German families have the longest average length of stay:
Longest average length of stay = 6.2 (U.S.A)
So False

Total German tourist spending is more than 92% of Total Spanish tourist spending:
92% of Spanish tourist spending = 92% x 410 = 377.2 (< 380)
So True

There are over 4 times as many Australian tourists as Italian tourists:
4 x 550 = 2200 (but not more than 2,200)
So False

Thus the correct answer is (D), Total German tourist spending is more than 92% of Total Spanish tourist spending

UK Tourist data				
Country of origin	Annual Number of Tourists (1000s)	Total Spending (million)	Average Family Length of Stay (days)	Average Family Spend (£ per day)
Australia	2,200	435	5.2	236
Spain	1,300	410	2.8	116
Germany	660	380	4.6	148
U.S.A.	830	350	6.2	244
Italy	550	283	3.8	164

Q29 On average which of the following tour parties would spend the most per day?

(A) 2 Australian families
(B) 2 Spanish families
(C) 3 German families
(D) 3 U.S.A. families
(E) 3 Italian families

Step 1 *- Calculate the cost for each of the options:*
2 Australian families = 2 x £236 = £472
2 Spanish families = 2 x £116 = £232
3 German families = 3 x £148 = £444
3 U.S.A. families = 3 x £244 = £732
3 Italian families = 3 x £164 = £492

Thus the correct answer is (D) 3 USA families

UK Tourist data				
Country of origin	Annual Number of Tourists (1000s)	Total Spending (million)	Average Family Length of Stay (days)	Average Family Spend (£ per day)
Australia	2,200	435	5.2	236
Spain	1,300	410	2.8	116
Germany	660	380	4.6	148
U.S.A.	830	350	6.2	244
Italy	550	283	3.8	164

Q30 Approximately, what's the average daily spend per family for the 5 countries of origin shown?

(A) £170
(B) £180
(C) £190
(D) £200
(E) Cannot tell from data

Step 1 *- Whilst it might be tempting to calculate (236 + 116 + 148 + 244 + 164) / 5 = £180, this is not quite correct.*

To be able to calculate the average spend per family, we would need to know how many families from each country there are. For example there might be a lot more families from one country which would distort the overall average.

Thus the correct answer is (E) Cannot tell from data

NUMERICAL REASONING TEST 4

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

Total Product Sales by Demographic

	Units sold				Annual Target	Product Sales Target
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	(Unit sales)	(Euros)
Greece	26,000	30,000	31,300	21,000	110,000	250,000
Portugal	28,000	33,200	22,600	20,400	105,000	240,000
Austria	20,000	28,300	22,500	35,000	105,000	240,000
Ireland	19,900	25,000	27,200	30,300	105,000	260,000
Croatia	21,500	29,400	25,800	28,500	110,000	230,000

Q1 What was the unit sales ratio of Austrian Quarter 4 : Portugal Quarter 1: Greek Quarter 4?

(A) 35:28:22
(B) 5:3:4
(C) 6:4:3
(D) 5:4:3
(E) 3:4:2

Step 1 *- Put the 3 countries into a ratio*
Austria (Quarter 4) : Portugal (Quarter 1): Greek (Quarter 4)
= 35,000: 28,000: 21,000

Step 2 *– Simplify the ratio (recognize that 7 is a common denominator)*
5:4:3

Thus the correct answer is (D) 5:4:3

Total Product Sales by Demographic

	Units sold				Annual Target	Product Sales Target
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	(Unit sales)	(Euros)
Greece	26,000	30,000	31,300	21,000	110,000	250,000
Portugal	28,000	33,200	22,600	20,400	105,000	240,000
Austria	20,000	28,300	22,500	35,000	105,000	240,000
Ireland	19,900	25,000	27,200	30,300	105,000	260,000
Croatia	21,500	29,400	25,800	28,500	110,000	230,000

Q2 Which country met or exceeded its annual target for unit sales?

(A)) Greece
(B) Portugal
(C) Austria
(D) Ireland
(E) Croatia

Tip: *Notice that all the available answers have just one country, so we know that as soon as we have found one country that exceeded its target, we have the correct answer and we can move on.*

Step 1 *– Calculate the total unit sales for each country*
Greece = 108,300
Portugal = 104,200
Austria = 105,800
Ireland = 102,400
Crotia = 105,200

Step 2 *– Compare each total to the Yearly Target (Unit sales)*
Targets are either 105,000 or 110,000.
Only Austria has exceeded its 105,000 target.

Thus the correct answer is (C) Austria

Total Product Sales by Demographic

	Units sold				Annual Target	Product Sales Target
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	(Unit sales)	(Euros)
Greece	26,000	30,000	31,300	21,000	110,000	250,000
Portugal	28,000	33,200	22,600	20,400	105,000	240,000
Austria	20,000	28,300	22,500	35,000	105,000	240,000
Ireland	19,900	25,000	27,200	30,300	105,000	260,000
Croatia	21,500	29,400	25,800	28,500	110,000	230,000

Q3 The previous year's average number of Portuguese units sold per quarter was 20% higher than the year shown. What was the previous year's average number of Portuguese units sold per quarter?

(A) 104,200
(B) 31,260
(C) 26,050
(D) 21,260
(E) 20,840

Step 1 *– Calculate this year's average number of Portuguese units sold per quarter*
(28,000 + 33,200 + 22,600 + 20,400) / 4 = 104,200 /4 = 26,050

Step 2 *– Calculate a 20% increase to get last year's average number of Portuguese units sold per quarter*
26,050 x 1.2 = 31,260

Thus the correct answer is (B) 31,260

Total Product Sales by Demographic

	Units sold				Annual Target	Product Sales Target
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	(Unit sales)	(Euros)
Greece	26,000	30,000	31,300	21,000	110,000	250,000
Portugal	28,000	33,200	22,600	20,400	105,000	240,000
Austria	20,000	28,300	22,500	35,000	105,000	240,000
Ireland	19,900	25,000	27,200	30,300	105,000	260,000
Croatia	21,500	29,400	25,800	28,500	110,000	230,000

Q4 If Austria's annual corporation tax was 22% on the first €200,000 of sales and 20% on sales exceeding €200,000, how much is their corporation tax bill for the year (assuming each unit is sold at €3.5)?

(A) €34,000
(B) €34,060
(C) €37,060
(D) €44,000
(E) €78,060

Step 1 *– Calculate the total value of Austrian unit sales*
Total Austrian unit sales = 105,800
Total value of Austrian unit sales = 105,800 x €3.5 = €370,300

Step 2 *- Calculate the corporation tax for the first €200,000 of Austrian unit sales*
€200,000 x 22% = €44,000

Step 3 *- Calculate the tax for sales exceeding €200,000*
€370,300 - €200,000 = €170,300
€170,300 x 20% = €34,060

Step 4 *– Calculate the total tax*
€44,000 + €34,060

Thus the correct answer is (E) €78,060

Total Product Sales by Demographic

	Units sold				Annual Target	Product Sales Target
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	(Unit sales)	(Euros)
Greece	26,000	30,000	31,300	21,000	110,000	250,000
Portugal	28,000	33,200	22,600	20,400	105,000	240,000
Austria	20,000	28,300	22,500	35,000	105,000	240,000
Ireland	19,900	25,000	27,200	30,300	105,000	260,000
Croatia	21,500	29,400	25,800	28,500	110,000	230,000

Q5 Greek and Irish sales generated 2.5 Euros per unit sold, whilst the other countries' sales generated 2.25 Euros per unit sold. Which country or countries exceeded their Annual Product Sales Target?

(A) Portugal and Austria
(B) Ireland and Austria
(C)) Croatia and Austria
(D)) Croatia and Greece
(E) Ireland and Greece

Step 1 *– Calculate the total unit sales for each country*
Using the earlier question's total unit sales for each country
Greece = 108,300 x 2.5 = 270,750
Portugal = 104,200 x 2.25 = 234,450
Austria = 105,800 x 2.25 = 238,050
Ireland = 102,400 x 2.5 = 256,000
Croatia = 105,200 x 2.25 = 236,700

Step 2 *– Compare each total to the Annual Product Sales Target*
Only Croatia and Greece exceeded their respective targets.

Thus the correct answer is (D) Croatia and Greece

Share	Price today (£)	Price yesterday (£)
Share A	20.0	19.4
Share B	4.2	3.9
Share C	18.1	19.3
Share D	5.6	5.1
Share E	3.1	3.3

Exchange Rate	Today	Yesterday
$	$1.62 to the £	$1.63 to the £
€	€1.23 to the £	€1.22 to the £

Q6 Which shares have increased and decreased respectively in value by the largest percent from yesterday to today?

(A) Share D, Share A
(B) Share D, Share C
(C) Share D, Share E
(D) Share B, Share A
(E) Share B, Share C

Tip: *The wording of the question for percentage increases and decreases is critical. Since the wording says "FROM yesterday TO today" the calculation we must perform is (today) ÷ (yesterday). To determine this, think about how you would increase something by say 20%. You multiply the original by 1.2 to get the increased result.*

Step 1 *– Calculate the % change in value for each share*
Share A: 20 /19.4 = 3.1% increase
Share B: 4.2 / 3.9 = 7.7% increase
Share C: 18.1 / 19.3 = 6.2% decrease
Share D: 5.6 / 5.1 = 9.8% increase
Share E: 3.1 / 3.3 = 6.1% decrease

Thus the correct answer is (B) Share D, Share C

Share	Price today (£)	Price yesterday (£)
Share A	20.0	19.4
Share B	4.2	3.9
Share C	18.1	19.3
Share D	5.6	5.1
Share E	3.1	3.3
Exchange Rate	**Today**	**Yesterday**
$	$1.62 to the £	$1.63 to the £
€	€1.23 to the £	€1.22 to the £

Q7 A dealer buys 250 Share Ds and 350 Share Es at yesterday's prices and sells these at today's prices. How much profit or loss does the dealer make?

(A)) £125 profit
(B)) £70 profit
(C)) £55 profit
(D)) £125 loss
(E)) £70 loss

Step 1 *– Calculate the Share D profit/loss*
250 x (5.6-5.1) = 125 profit

Step 2 *– Calculate the Share E profit/loss*
350 x (3.1-3.3) = 70 loss

Step 3 *– Calculate the overall profit/loss*
125 profit – 70 loss = £55 profit

Thus the correct answer is (C) £55 profit

Share	Price today (£)	Price yesterday (£)
Share A	20.0	19.4
Share B	4.2	3.9
Share C	18.1	19.3
Share D	5.6	5.1
Share E	3.1	3.3
Exchange Rate	**Today**	**Yesterday**
$	$1.62 to the £	$1.63 to the £
€	€1.23 to the £	€1.22 to the £

Q8 A trader has 200,000 Share Bs to sell at today's price and today plans to split her proceeds equally into an investment in Share A and Share D. In how many Share As and Share Ds does the trader invest?

(A)) 20,000 Share A and 70,000 Share D
(B)) 21,000 Share A and 75,000 Share D
(C)) 22,000 Share A and 80,000 Share D
(D)) 23,000 Share A and 85,000 Share D
(E)) 24,000 Share A and 90,000 Share D

Step 1 *– Calculate the amount invested per share*
200,000 x 4.2 = £840,000
£840,000 / 2 = £420,000 per share A and D.

Step 2 *– Calculate the number of Share A shares at today's prices*
£420,000/20 = 21,000 of Share A

Step 3 *– Calculate the number of Share D shares at today's prices*
£420,000/5.6 = 75,000 of Share D

Tip: *If at this point you had answers in decimals you should question whether that's correct and go back.*

Thus the correct answer is (B) 21,000 Share A and 75,000 Share D

Share	Price today (£)	Price yesterday (£)
Share A	20.0	19.4
Share B	4.2	3.9
Share C	18.1	19.3
Share D	5.6	5.1
Share E	3.1	3.3
Exchange Rate	**Today**	**Yesterday**
$	$1.62 to the £	$1.63 to the £
€	€1.23 to the £	€1.22 to the £

Q9 What was the total cost of buying 550 Share C's yesterday and 1,050 Share E's today (to the nearest $1,000)?

(A) $11,000
(B) $14,000
(C) $17,000
(D) $18,000
(E) $23,000

Step 1 *- Calculate the cost of 550 Share Cs bought yesterday*
550 x 19.3 = £10,615

Step 2 *– Change into $*
10,615 x 1.63 = $17,302.45

Step 3 *– Calculate the cost of 1,050 Share Es bought today*
1,050 x 3.1 = £3,255

Step 4 *– Change into $*
3,255 x 1.62 = $5,273.1

Step 5 *– Calculate the total cost*
$17,302.45+ $5,273.1 = $22,575.55

Tip: *If you forgot to convert into dollars, your answer of £14,000 looks very similar to option (B) and you would have got this question wrong. Often, distracters like this are included in the answers to catch you out.*

Thus the correct answer is (E) $23,000

Share	Price today (£)	Price yesterday (£)
Share A	20.0	19.4
Share B	4.2	3.9
Share C	18.1	19.3
Share D	5.6	5.1
Share E	3.1	3.3

Exchange Rate	Today	Yesterday
$	$1.62 to the £	$1.63 to the £
€	€1.23 to the £	€1.22 to the £

Q10 Today's prices for Share A and Share C (in Euros) respectively represent a 15% decrease and a 22% increase on the price (in Euros) one year ago. What were the respective prices a year ago (to the nearest Euro)?

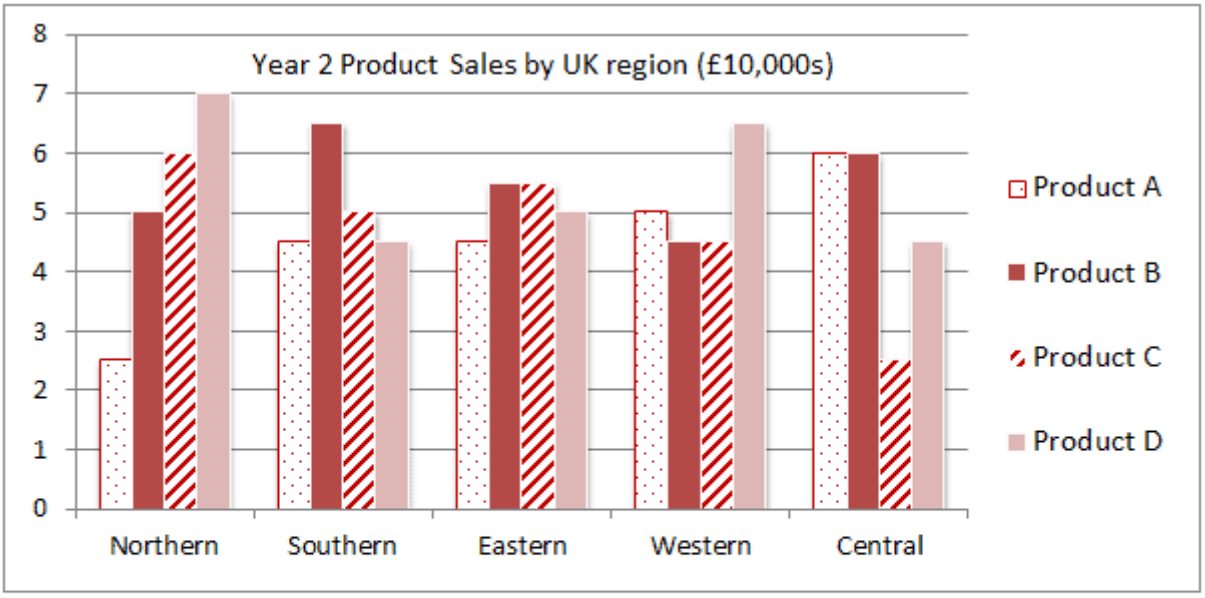
(A)) €18 (Share A); €18 (Share C)
(B)) €22 (Share A); €22 (Share C)
(C)) €29 (Share A); €29 (Share C)
(D)) €29 (Share A); €18 (Share C)
(E)) €29 (Share A); €30 (Share C)

***Step 1** – Convert share prices in to Euros*
Share A: 20 x 1.23 = €24.6
Share C: 18.1 x 1.23 = €22.263

***Step 2** - Calculate the Share A price one year ago*
24.6 ÷ 0.85 = €28.94

***Step 3** – Calculate the Share C price one year ago*
22.263 ÷ 1.22 = €18.25

Thus the correct answer is (D) €29 (Share A); €18 (Share C)



% of total Sales	Northern	Southern	Eastern	Western	Central
Year 1	22	24	22	18	14
Year 3	24	20	24	16	16

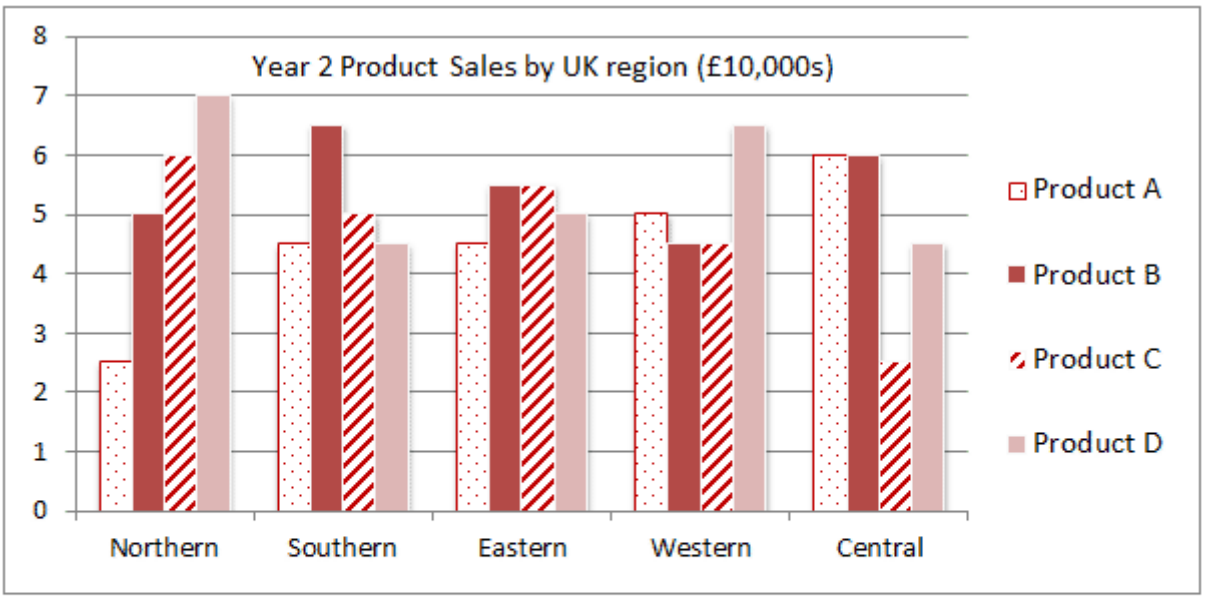
Q11 Which two products had the same total product sales in Year 2?

(A) Product A and Product B
(B) Product A and Product C
(C) Product A and Product D
(D) Product B and Product C
(E) Product B and Product D

There is nothing difficult about this one, just a lot of careful calculator work.

Step 1 *– Calculate Year 2 product sales for each product*
Product A total = 22.5
Product B total = 27.5
Product C total = 23.5
Product D total= 27.5

Thus the correct answer is (E) Product B and Product D



% of total Sales	Northern	Southern	Eastern	Western	Central
Year 1	22	24	22	18	14
Year 3	24	20	24	16	16

Q12 As a percentage of total sales across all regions, how has the Eastern region's sales changed between Year 1 and Year 2?

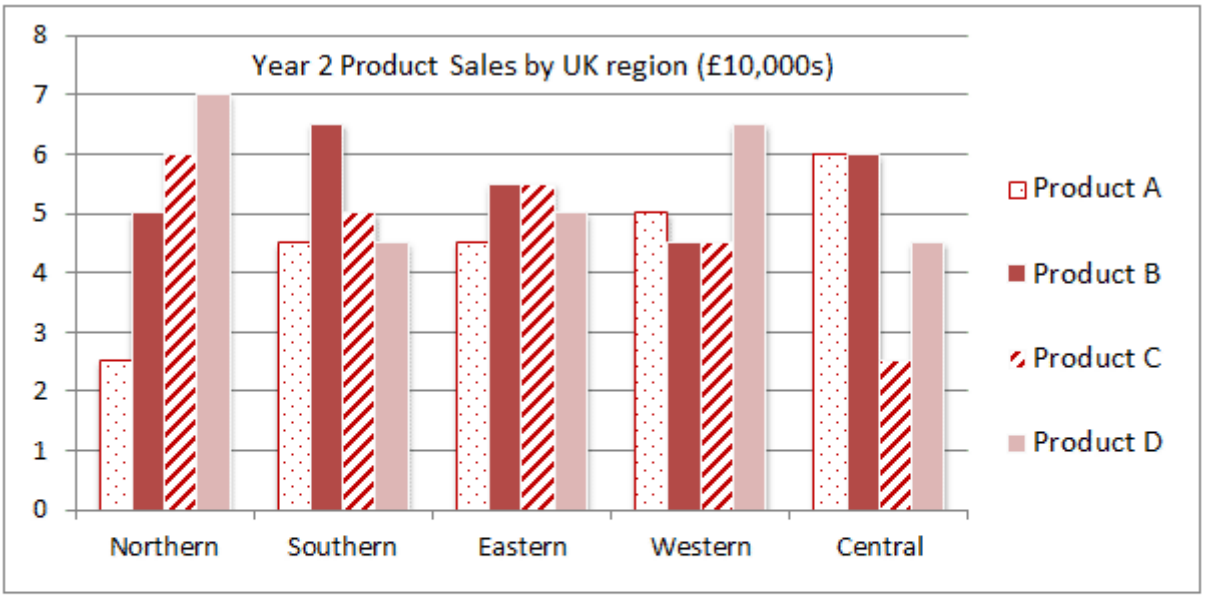
(A)) 1% less
(B)) 1.7% more
(C)) 1.7% less
(D)) 3% more
(E)) 3% less

The information that you need is in the graph (Year 2) and the table (Year 1)

***Step 1** – Calculate the Eastern region's % of total sales (Year 2)*
Eastern region's Year 2 sales = 4.5 + 5.5 + 5.5 + 5.0 = 20.5
Add up the total sales for all products across all regions (Year 2)
(2.5 + 5 + 6 + 7 + 4.5 + 6.5 + 5 + 4.5 + 4.5 + 5.5 + 5.5 + 5 + 5 + 4.5 + 4.5 + 6.5 + 6 + 6 + 2.5 + 4.5) = 101 (£10,000s).
Now as a % of total sales this is 20.5 / 101 = 20.3% for year 2.

***Step 2** – Calculate the change between Year 1 and Year 2*
Year 1 from the table is given as 22%
And 22 – 20.3 = 1.7%

Thus the correct answer is (C) 1.7% less



% of total Sales	Northern	Southern	Eastern	Western	Central
Year 1	22	24	22	18	14
Year 3	24	20	24	16	16

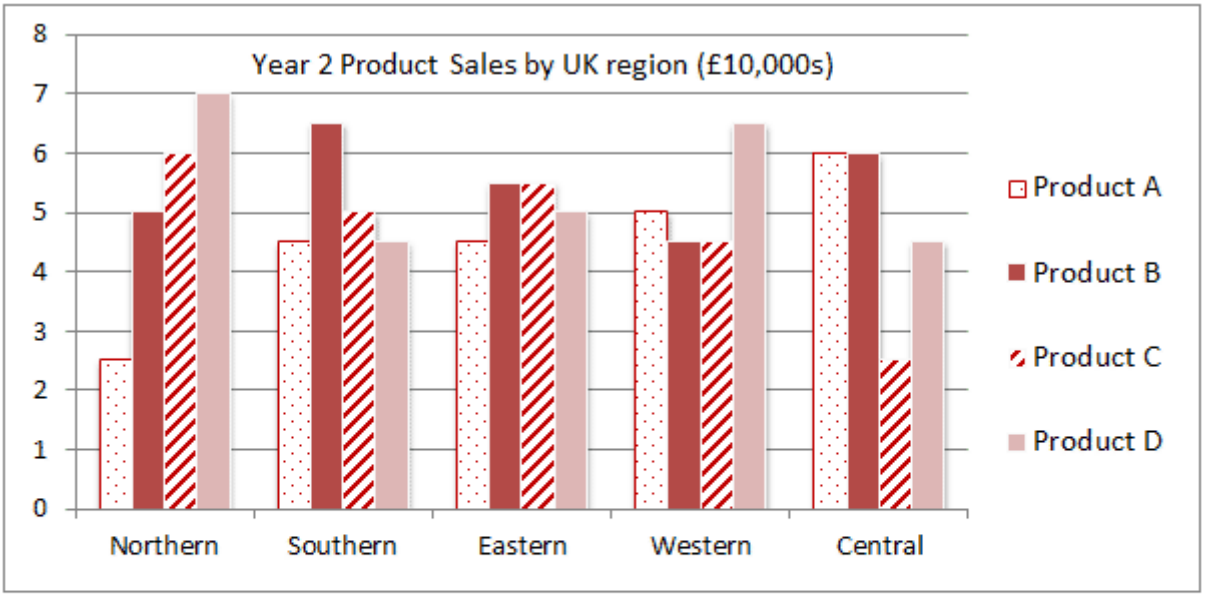
Q13 For products A, B, C and D combined, which region had a sales value different from the other regions in Year 2?

(A) Western
(B) Eastern
(C)) Central
(D)) Northern
(E)) None of these

Step 1 *- Calculate the total sales for each region*
Eastern = 4.5 + 5.5 + 5.5 + 5 = 20.5
Northern = 2.5 + 5 + 6 + 7 = 20.5
Southern = 4.5 + 6.5 + 5 + 4.5 = 20.5
Western = 5 + 4.5 + 4.5 + 6.5 = 20.5
Central = 6 + 6 + 2.5 + 4.5 = 19

We can now see that the Central region had a value not equal to the others.

Thus the correct answer is (C) Central



% of total Sales	Northern	Southern	Eastern	Western	Central
Year 1	22	24	22	18	14
Year 3	24	20	24	16	16

Q14 The 5 regions shown represent UK product sales, which is one-quarter of the value of US product sales and 50% of the value of Asian product sales. What are Year 2's total product sales for all 3 territories combined?

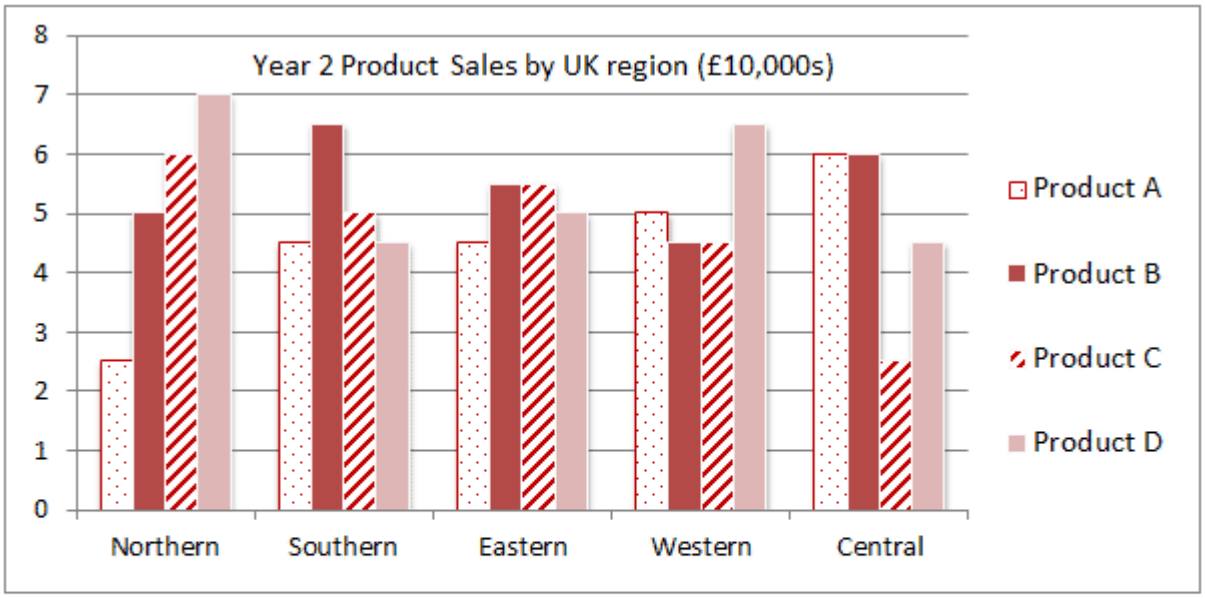
(A) £9,010,000
(B) £7,070,000
(C) £5,000,000
(D) £3,030,000
(E) £1,010,000

Step 1 *– Refer back to the earlier question for the Year 2 product sales for each product (this is why it's useful to have legible notes on your rough workings).*

Step 2 *- Calculate the total Year 2 product sales for the UK*
Total = 22.5 + 27.5 + 23.5 + 27.5 = 101 (10,000's) = 1,010,000

Step 3 *– Create an equation totaling the sales of all 3 territories*
Total = UK + US + Asia
Total = 1,010,000 x (1 + 4 + 2) = £7,070,000

Thus the correct answer is (B) £7,070,000



% of total Sales	Northern	Southern	Eastern	Western	Central
Year 1	22	24	22	18	14
Year 3	24	20	24	16	16

Q15 Which region experienced the greatest change in its share of total UK sales between Year 1 and Year 2?

(A)) Northern
(B) Southern
(C)) Western
(D) Eastern
(E) Central

The information that you need is in the graph (Year 2) and the table (Year 1)

Step 1 *– Calculate each region's % of total sales for Year 2 (you can save time by using the figures from a previous question)*
Eastern = 20.5 / 101 = 20.3
Northern = 20.5 / 101 = 20.3
Southern = 20.5 / 101 = 20.3
Western = 20.5 / 101 = 20.3
Central = 19 / 101 = 18.8

Step 2 *– Calculate the change in market share between Year 1 and Year 2, as follows;*

N	***S***	***E***	***W***	***C***
22 – 20.3 = 1.7%	*24 – 20.3 = 3.7%*	*22 – 20.3 = 1.7%*	*18 – 20.3 = -2.3%*	*14 – 18.8 = -4.8%*

Thus the correct answer is (E) Central

Total Liabilities	Previous Year (£million)	Current Year (£million)	Next Year's Projection (£million)
Current Liabilities			
Interest paying loans	135	126	134
Currency swaps	8.5	11.3	6.9
Other current liabilities	42	52	48.3
Non-Current Liabilities			
Interest bearing loans	53	45	42.6
Pension payments	204	196	218
Tax liabilities	48	56.4	49.5

Q16 Next year, which liability is projected to have experienced the second highest percentage change in value compared with last year?

(A) Interest paying loans
(B) Currency swaps
(C)) Other current liabilities
(D) Pension payments
(E)) Cannot tell

Step 1 *- Calculate the % change in value for each liability shown.*

Interest paying loans = 134 / 135 = 0.993 = 0.7% decrease
Currency swaps= 6.9 / 8.5= 0.812 = 18.8% decrease – second largest change
Other current liabilities = 48 / 42 = 15% increase
Interest bearing loans = 42.6 / 53 = 19.62% decrease – Largest change
Pension payments = 218 / 204 = 6.9% increase
Tax liabilities = 49.5 / 48 = 3.125% increase.

Thus the correct answer is (B) Currency swaps

Total Liabilities	Previous Year (£million)	Current Year (£million)	Next Year's Projection (£million)
Current Liabilities			
Interest paying loans	135	126	134
Currency swaps	8.5	11.3	6.9
Other current liabilities	42	52	48.3
Non-Current Liabilities			
Interest bearing loans	53	45	42.6
Pension payments	204	196	218
Tax liabilities	48	56.4	49.5

Q17 What is the average difference between the total Non-Current Liabilities and the total Current Liabilities for the 3 years shown (to the nearest £million)?

(A)) £116 million
(B)) £117 million
(C)) £118 million
(D)) £119 million
(E)) £120 million

Step 1 *– Calculate the Previous year's difference between the total Non-current liabilities and the total Current liabilities*
305 – 185.5 = 119.5

Step 2 *– Calculate the Current year's difference between the total Non-current liabilities and the total Current liabilities*
297.4 – 189.3 = 108.1

Step 3 *– Calculate Next year's projected difference between the total Non-current liabilities and the total Current liabilities*
310.1 – 189.2 = 120.9

Step 4 *– Calculate the average*
(119.5 + 108.1 + 120.9) / 3 = 116.2

Thus the correct answer is (A) £116 million

Total Liabilities	Previous Year (£million)	Current Year (£million)	Next Year's Projection (£million)
Current Liabilities			
Interest paying loans	135	126	134
Currency swaps	8.5	11.3	6.9
Other current liabilities	42	52	48.3
Non-Current Liabilities			
Interest bearing loans	53	45	42.6
Pension payments	204	196	218
Tax liabilities	48	56.4	49.5

Q18 If the projected figures shown prove accurate and the same percentage changes occur for each liability in the year after next, what will the total Current Liabilities be in the year after next (to the nearest £million)?

(A)) £192 million
(B)) £189 million
(C)) £187 million
(D)) £185 million
(E)) £183 million

Step 1 *– Calculate each Current Liability's % change, as follows*

Interest paying loans	*134 / 126 = 106.35%*
Currency swaps	*6.9 / 11.3 = 61.06 %*
Other current liabilities	*48.3 / 52 = 92.88%*

Step 2 *– Calculate each Current Liability's subsequent year's value*

Interest paying loans	*134 x 106.35% = 142.51*
Currency swaps	*6.9 x 61.06% = 4.21*
Other current liabilities	*48.3 x 92.88% = 44.86*

Tip: *instead of writing down the percentage increase for each category, it saves time if you leave the number in your calculator and work out the "subsequent year" figure straight away. In other words, combine steps 1 and 2.*

Step 3 *– Total the Current Liability values*
142.51 + 4.21 + 44.86 = 191.59

Thus the correct answer is (A) £192 million

Total Liabilities	Previous Year (£million)	Current Year (£million)	Next Year's Projection (£million)
Current Liabilities			
Interest paying loans	135	126	134
Currency swaps	8.5	11.3	6.9
Other current liabilities	42	52	48.3
Non-Current Liabilities			
Interest bearing loans	53	45	42.6
Pension payments	204	196	218
Tax liabilities	48	56.4	49.5

Q19 The Pension payments figure for each year is based upon the following numbers of ex-employees drawing a pension: 8,155 (previous year); 8,240 (current year); 8,325 (next year). What is the average pension payable across the 3 years shown (to the nearest £1,000)?

(A) £15,000
(B) £20,000
(C) £25,000
(D) £30,000
(E) £35,000

Step 1 *– Calculate the total amount of pension payments across the 3 years shown*
204 + 196 + 218 = £618 million

Step 2 *– Calculate the total number of ex-employees drawing a pension across the 3 years shown*
8,155 + 8,240 + 8,325 = 24,720

Step 3 *– Calculate the average pension payable across the 3 years*
£618 million / 24,720 = £25,000

Thus the correct answer is (C) £25,000

Total Liabilities	Previous Year (£million)	Current Year (£million)	Next Year's Projection (£million)
Current Liabilities			
Interest paying loans	135	126	134
Currency swaps	8.5	11.3	6.9
Other current liabilities	42	52	48.3
Non-Current Liabilities			
Interest bearing loans	53	45	42.6
Pension payments	204	196	218
Tax liabilities	48	56.4	49.5

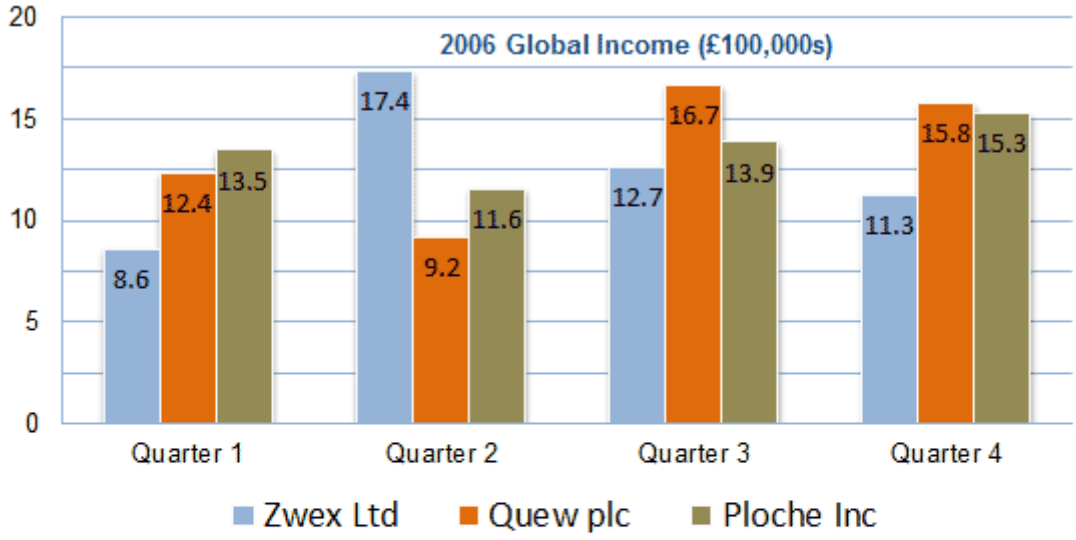
Q20 Next year's projected figures need to be corrected by adding an additional 4% for inflation. What is next year's corrected total Non-Current Liabilities?

(A)) £322.5 million
(B)) £310.1 million
(C)) £309.3 million
(D)) £297.7 million
(E)) £297.4 million

Step 1 *– Calculate next year's projected total Non-current liabilities*
Interest bearing loans + Pension payments + Tax liabilities =
42.6 + 218 + 49.5 = 310.1

Step 2 *– Correct the total by adding 4% for inflation*
310.1 x 1.04 = £322.5 million

Thus the correct answer is (A) £322.5 million



Global income (% annual change on year before)

	2007	2008	2009	2010	2011 (projection)
Zwex Ltd	2.3	0.6	2.2	1.8	2.1
Quew plc	-0.7	-0.8	0.3	1.1	1.4
Ploche Inc	1.4	1.2	1.6	0.5	2.9

Q21 What was the global income for Ploche Inc in 2007 (to the nearest £10,000)?

(A) £6,000,000
(B) £5,510,000
(C) £5,500,000
(D) £5,430,000
(E) £4,510,000

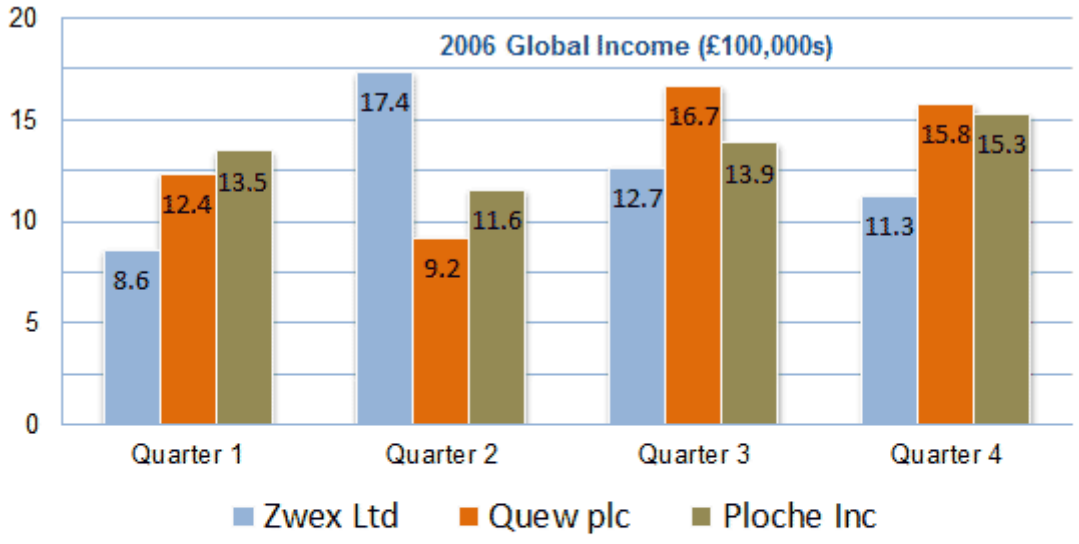
The information that you need is shown in both the line graph and the histogram.

Step 1 *– Calculate 2006's global income for Ploche Inc by adding the 4 quarters*
13.5 + 11.6 + 13.9 + 15.3 = 54.3 (£100,000s)
= £5.43 million

Step 2 *– Calculate 2007 global income (allowing for the annual change of 1.4%)*
£5.43 million x 1.014 = £5.506 million

Step 3 *- To the nearest £10,000*
£5.506 million = £5,510,000

Thus the correct answer is (B) £5,510,000



Global income (% annual change on year before)

	2007	2008	2009	2010	2011 (projection)
Zwex Ltd	2.3	0.6	2.2	1.8	2.1
Quew plc	-0.7	-0.8	0.3	1.1	1.4
Ploche Inc	1.4	1.2	1.6	0.5	2.9

Q22 Which of the following statements is true?

(A) Ploche Inc increased global income each quarter during 2006
(B) Between 2007-2010 Zwex Ltd has experienced 6.9% global income growth
(C) In 2006 Quew plc's global income was £5,430,000
(D) Ploche Inc has experienced positive global growth each year between 2006-2010
(E) The average 2006 Quarter 2 sales were £1.15 million

(A) Ploche Inc increased global income each quarter during 2006.
FALSE – not in Quarter 2

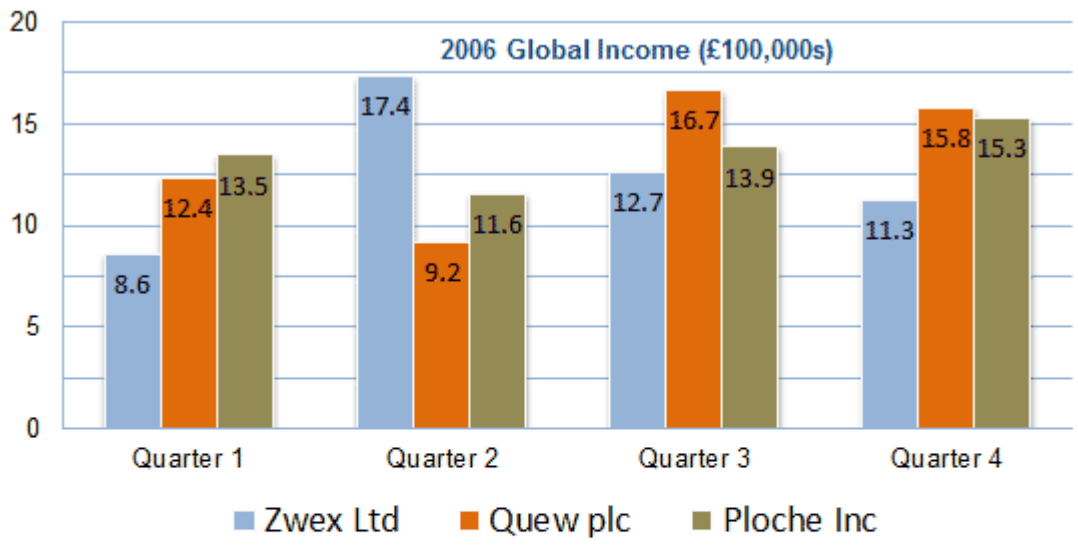
(B) Between 2007-2010 Zwex Ltd has experienced 6.9% global income growth.
FALSE - % are cumulative year-on-year. Hence the growth between 2007-2010 is (1.006 x 1.022 x 1.018) = 1.0466, or an increase of 4.66% between 2007 and 2010.

(C) In 2006 Quew plc's global income was £5,430,000
FALSE – it was £5,410,000

(D) Ploche Inc has experienced positive global growth each year between 2006-2010
TRUE

(E)) The average 2006 Quarter 2 sales were £1.15
million FALSE – they were £1.27 million

Thus the correct answer is (D) Ploche Inc has experienced positive global growth each year between 2006-2010



Global income (% annual change on year before)

	2007	2008	2009	2010	2011 (projection)
Zwex Ltd	2.3	0.6	2.2	1.8	2.1
Quew plc	-0.7	-0.8	0.3	1.1	1.4
Ploche Inc	1.4	1.2	1.6	0.5	2.9

Q23 In which year up to 2010 did Quew plc experience a higher annual % growth than either Zwex Ltd or Ploche Inc?

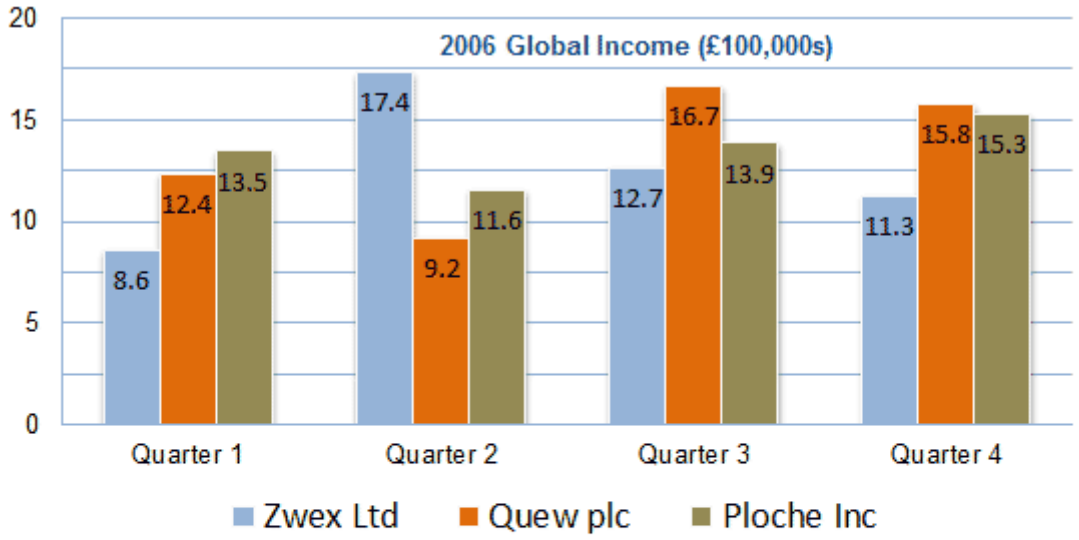
(A) 2007
(B) 2008
(C) 2009
(D) 2010
(E) None of these

Step 1 *- Simply compare Quew plc's figures for each period compared to Zwex Ltd and Ploche Inc:*

	2007	*2008*	*2009*	*2010*
Zwex Ltd	*2.3*	*0.6*	*2.2*	*1.8*
Quew plc	***-0.7***	***-0.8***	***0.3***	***1.1***
Ploche Inc	*1.4*	*1.2*	*1.6*	*0.5*

We see that in 2010 Quew grew by 1.1% whilst Ploche grew by 0.5%. Note the question asks for EITHER Zwex or Ploche; don't fall into the trap of looking for a year in which Quew is larger than BOTH Zwex and Ploche.

Thus the correct answer is (D) 2010



Global income (% annual change on year before)

	2007	2008	2009	2010	2011 (projection)
Zwex Ltd	2.3	0.6	2.2	1.8	2.1
Quew plc	-0.7	-0.8	0.3	1.1	1.4
Ploche Inc	1.4	1.2	1.6	0.5	2.9

Q24 In 2006 Zwex's Global sales comprised European and non-European sales, which were in the ratio 3:4. What were Zwex's European sales for 2006?

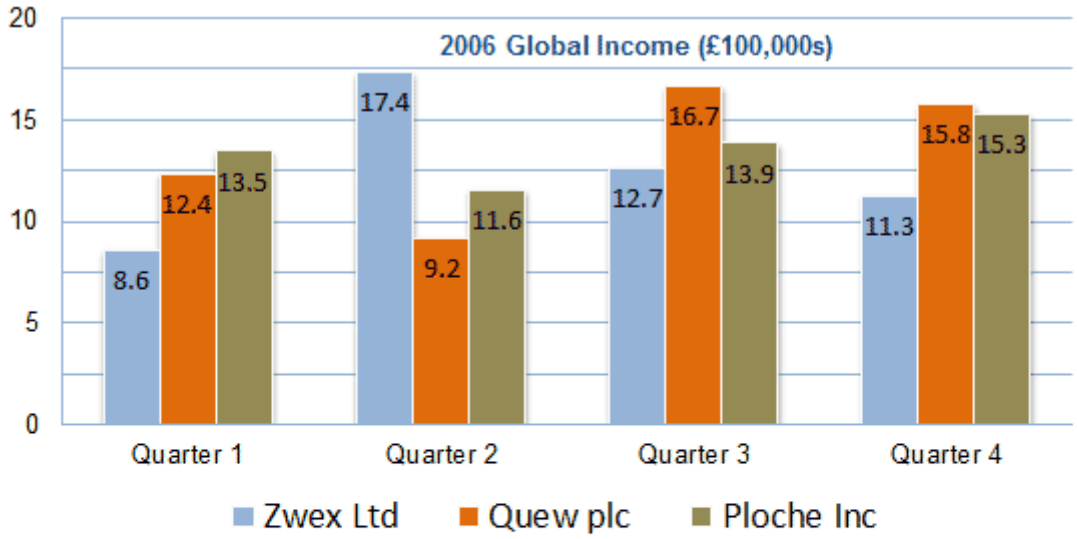
(A)) £2.14 million
(B)) £2.5 million
(C)) £3 million
(D)) £3.5 million
(E)) £3.75 million

Step 1 *– Calculate Zwex Ltd's Global sales for 2006*
8.6 + 17.4 + 12.7 + 11.3 = 50 (£100,000s)

Step 2 *– Put this figure into the ratio given in the question. If European sales were 3 parts out of a total of 7 (i.e. European plus non-European) we have to multiply by 3/7.*

Step 3 *– Calculate Zwex's European sales*
£5 million x 3/7 = £2.143 million

Thus the correct answer is (A) £2.14 million



Global income (% annual change on year before)

	2007	2008	2009	2010	2011 (projection)
Zwex Ltd	2.3	0.6	2.2	1.8	2.1
Quew plc	-0.7	-0.8	0.3	1.1	1.4
Ploche Inc	1.4	1.2	1.6	0.5	2.9

Q25 What was the global income for Quew plc in 2008 (to the nearest £100,000)?

(A)) £5.41 million
(B)) £5.37 million
(C)) £5.33 million
(D)) £5.30 million
(E)) £5.23 million

The information that you need is shown in both the table and the histogram.

Step 1 *– Calculate 2006's global income for Quew plc by adding the 4 quarters*
12.4 + 9.2 + 16.7 + 15.8 = 54.1 (£100,000's)
= £5.41 million

Step 2 *– Calculate 2007 global income (allowing for the global income change of - 0.7%)*
£5.41 million x 99.3% = £5.37 million

Step 3 *– Calculate 2008 global income (allowing for the global income change of - 0.8%)*
£5.37 million x 99.2% = £5.33 million

Step 4 *- To the nearest £100,000*
£5.33 million = £5.30 million

Note that £5.33 is incorrect as the question asked for to the nearest £100,000.

Thus the correct answer is (D) £5.30 million

	2006	2007	2008	2009	2010
	(£million)	*(£million)*	*(£million)*	*(£million)*	*(£million)*
Adjusted earnings	1.02	1.05	0.95	0.98	1.11
Cash flow	1.32	1.42	1.34	1.25	1.53
Attributable profit	1.95	2.11	1.93	1.88	2.23
Average profit (per 500 units)	£250	£325	£175	£200	£300
Average sales price (per unit)	£4.50	£4.65	£4.30	£4.15	£4.60

Q26 From 2006 to 2007 Attributable profit increased at double the percentage rate as it did between 2005-2006. What was the Attributable profit figure for 2005?

(A)) £0.23 million
(B)) £1.03 million
(C)) £1.83 million
(D)) £1.87 million
(E)) £2.03 million

Step 1 *– Calculate the 2005-2006 rate of Attributable profit increase*
Rate between 2006-2007 = 2.11 / 1.95 = 8.2% increase
Rate between 2005-2006 = 8.2 / 2 = 4.1% increase

Step 2 *– Calculate the Attributable profit figure for 2005*
1.95 ÷ 1.041 = 1.87 (£million)

Thus the correct answer is (D) £1.87 million

	2006	2007	2008	2009	2010
	(£million)	*(£million)*	*(£million)*	*(£million)*	*(£million)*
Adjusted earnings	1.02	1.05	0.95	0.98	1.11
Cash flow	1.32	1.42	1.34	1.25	1.53
Attributable profit	1.95	2.11	1.93	1.88	2.23
Average profit (per 500 units)	£250	£325	£175	£200	£300
Average sales price (per unit)	£4.50	£4.65	£4.30	£4.15	£4.60

Q27 If the target was to have an average profit (per unit) in excess of 50p, in which year or years was this achieved?

(A) 2006
(B) 2006 and 2007
(C) 2010
(D) 2007 and 2010
(E) 2006, 2007 and 2010

Step 1 *- Calculate the average profit (per unit) as follows:*

2006	*2007*	*2008*	*2009*	*2010*
£250	*£325*	*£175*	*£200*	*£300*
£250 / 500 = £0.50	*£325 / 500 = £0.65*	*£175/ 500 = £0.35*	*£200/ 500 = £0.40*	*£300 / 500 = £0.60*

Note the question asks for "in excess of 50p". So in 2006 where the profit was exactly 50p, this does not satisfy the requirement.

Thus the correct answer is (D) 2007 and 2010

	2006	2007	2008	2009	2010
	(£million)	*(£million)*	*(£million)*	*(£million)*	*(£million)*
Adjusted earnings	1.02	1.05	0.95	0.98	1.11
Cash flow	1.32	1.42	1.34	1.25	1.53
Attributable profit	1.95	2.11	1.93	1.88	2.23
Average profit (per 500 units)	£250	£325	£175	£200	£300
Average sales price (per unit)	£4.50	£4.65	£4.30	£4.15	£4.60

Q28 In 2011, if Adjusted earnings increase by an eighth and there is a 2:3 ratio of (2011 Adjusted earnings: 2011 Cash flow), what will be the Cash flow in 2011?

(A)) £2.14 million
(B)) £1.87 million
(C)) £1.25 million
(D)) £0.83 million
(E)) £0.14 million

Step 1 *– Calculate the 2011 Adjusted earnings*
1.11 x 1 1/8 = 1.249

Step 2 *– Calculate the 2011 Cash flow*
Adjusted earnings : Cash flow = 2:3
Cash flow = 1.249 x 3/2 = 1.87

Thus the correct answer is (B) £1.87 million

	2006	2007	2008	2009	2010
	(£million)	*(£million)*	*(£million)*	*(£million)*	*(£million)*
Adjusted earnings	1.02	1.05	0.95	0.98	1.11
Cash flow	1.32	1.42	1.34	1.25	1.53
Attributable profit	1.95	2.11	1.93	1.88	2.23
Average profit (per 500 units)	£250	£325	£175	£200	£300
Average sales price (per unit)	£4.50	£4.65	£4.30	£4.15	£4.60

Q29 Which year had the lowest ratio of Adjusted earnings to Attributable profit?

(A) 2006
(B) 2007
(C) 2008
(D) 2009
(E) 2010

Step 1 *- Calculate the ratio for each year as shown in the table below;*

	2006	*2007*	*2008*	*2009*	*2010*
Adjusted earnings/ Attributable profit	*= 1.02/1.95*	*= 1.05/2.11*	*= 0.95/1.93*	*= 0.98/1.88*	*= 1.11/2.23*
	= 0.52	*= 0.498*	*= 0.492*	*= 0.52*	*= 0.50*

Thus the correct answer is (C) 2008

	2006	2007	2008	2009	2010
	(£million)	*(£million)*	*(£million)*	*(£million)*	*(£million)*
Adjusted earnings	1.02	1.05	0.95	0.98	1.11
Cash flow	1.32	1.42	1.34	1.25	1.53
Attributable profit	1.95	2.11	1.93	1.88	2.23
Average profit (per 500 units)	£250	£325	£175	£200	£300
Average sales price (per unit)	£4.50	£4.65	£4.30	£4.15	£4.60

Q30 Which year from 2007 onwards showed the greatest percentage change in Cash flow compared to the preceding year?

(A) 2006
(B) 2007
(C) 2008
(D) 2009
(E) 2010

Step 1 *– Calculate the % change in cash flow for each year*

2007	*2008*	*2009*	*2010*
1.42 / 1.32	*1.34 / 1.42*	*1.25 / 1.34*	*1.53/1.25*
= 7.58% (increase)	*= 5.63% (decrease)*	*= 6.72% (decrease)*	*= 22.4% (increase)*

Thus the correct answer is (E) 2010

NUMERICAL REASONING TEST

5

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

Product code	Non-European stores selling product	Current month's sales ($)	Price per product unit ($)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
FD24**	7	9,000	180

* Promotional offer = 3 for the price of 2

** Promotional offer = 4 for the price of 3

Product code	European stores selling product	Current month's sales (€)	Price per product unit (€)
DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

Q1 Which of the products shown had the lowest value of sales per non-European store and which had the highest value of sales per European store?

(A) PU10 (non-European); AE25 (European)
(B) FD24 (non-European); DE45 (European)
(C) FD24 (non-European); AE25 (European)
(D) AE25 (non-European); PU10 (European)
(E) AE25 (non-European); FD24 (European)

***Step 1** – Calculate each product's average sales per European store*
DE45 = 21,000/26 = 808
PU20 = 30,000/19 = 1,579
AE25 = 24,500/11 = 2,227
PU10 = 18,700/9 = 2,078
FD24 = 14,700/13 = 1,131

***Step 2** – Calculate each product's average sales per non-European store*
DE45 = 35,000/14 = 2,500
PU20 = 20,000/9 = 2,222
AE25 = 13,000/6 = 2,167
PU10 = 24,000/5 = 4,800
FD24 = 9,000/7 = 1,286

Thus the correct answer is (C) FD24 (non-European); AE25 (European)

Product code	Non-European stores selling product	Current month's sales ($)	Price per product unit ($)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
FD24**	7	9,000	180

* Promotional offer = 3 for the price of 2

** Promotional offer = 4 for the price of 3

Product code	European stores selling product	Current month's sales (€)	Price per product unit (€)
DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

Q2 What is the discrepancy (in $) between the AE25 price per product unit in non-European stores compared to European stores. Use an exchange rate of €0.80 to the $.

(A) $30
(B) $120
(C) $130
(D) $200
(E) $230

The information that you need is shown in both tables. Note from the possible answers it doesn't matter which is the greater, we just need the difference.

Tip: *If you struggle with the term "€X to the $" and you sometimes multiply when you should divide by the conversion, think of an extreme example. So think of a two currencies that have very different strengths, for example Zimbabwean Dollar to the British Pound. It doesn't matter what the values are but you know there are lots of ZWDs to the BGP and you also know that the same product will cost a lot more ZWDs than GBP. Hopefully that will help you decide if currency A should be a higher number than currency B, or vise versa.*

Step 1 *– Read from the table the AE25 price per product unit (non-European stores) = $130*

Step 2 *– Calculate the AE25 price per product unit (European stores) = €200 ÷ 0.80 = $250*

Step 3 *– Calculate the difference between the two*
$250 - $130 = $120

Thus the correct answer is (B) $120

Product code	Non-European stores selling product	Current month's sales ($)	Price per product unit ($)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
FD24**	7	9,000	180

* Promotional offer = 3 for the price of 2

** Promotional offer = 4 for the price of 3

Product code	European stores selling product	Current month's sales (€)	Price per product unit (€)
DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

Q3 This month's combined target for non-European and European sales of AE25 is €40,000. Using an exchange rate of €0.75 to the $, what is the difference between the sales values shown and this target?

(A) €575
(B) €750
(C) €5,100
(D) €5,750
(E) €7,500

The information that you need is shown in both tables

***Step 1** – Calculate AE25's non-European sales in Euros*
$13,000 x €0.75 = €9,750

***Step 2** – Calculate AE25's combined European and non-European sales*
€9,750 + €24,500 = €34,250

***Step 3** – Calculate the discrepancy against target sales*
€40,000 - €34,250 = €5,750

Thus the correct answer is (D) €5,750

Product code	Non-European stores selling product	Current month's sales ($)	Price per product unit ($)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
FD24**	7	9,000	180

* Promotional offer = 3 for the price of 2

** Promotional offer = 4 for the price of 3

Product code	European stores selling product	Current month's sales (€)	Price per product unit (€)
DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

Q4 Combining European and non-European sales, which products generated the highest number of product units sold? Use the non-promotional sales prices shown.

(A) DE45
(B) PU20
(C) AE25
(D) PU10
(E) FD24

The information that you need is shown in both tables.

***Step 1** – Calculate the number of sales per product (non-European stores)*

	Product unit sales
DE45	*35,000/175 = 200*
PU20	*20,000/200 = 100*
AE25	*13,000/130 = 100*
PU10	*24,000/150= 160*
FD24	*9,000/180 = 50*

***Step 2** – Calculate the number of sales per product (European stores)*

DE45	*€145*	*21,000/150 = 140*
PU20	*€185*	*30,000/160 = 187.5*
AE25	*€240*	*24,500/200 = 122.5*
PU10	*€110*	*18,700/110 = 170*

FD24	*€150*	*14,700/90 = 163.33*

Step 3 *– Calculate the total number of sales per product*

DE45	***200 + 140 = 340***
PU20	*100 + 187.5 = 287.5*
AE25	*100 + 122.5 = 222.5*
PU10	*160 + 170 = 330*
FD24	*50 + 63.33 = 213.33*

Thus the correct answer is (A) DE45

Product code	Non-European stores selling product	Current month's sales ($)	Price per product unit ($)
DE45*	14	35,000	175
PU20*	9	20,000	200
AE25	6	13,000	130
PU10**	5	24,000	150
FD24**	7	9,000	180

* Promotional offer = 3 for the price of 2

** Promotional offer = 4 for the price of 3

Product code	European stores selling product	Current month's sales (€)	Price per product unit (€)
DE45	26	21,000	150
PU20	19	30,000	160
AE25	11	24,500	200
PU10	9	18,700	110
FD24	13	14,700	90

Q5 Given that a customer uses the promotional offers shown, put the 5 products sold in non-European stores into order of increasing promotional price per unit (starting with the cheapest).

(A) AE25, PU10, DE45, FD24, PU20
(B) PU10, DE45, PU20, AE25, FD24
(C) PU10, DE45, AE25, PU20, FD24
(D) DE45, PU10, PU20, AE25, FD24
(E) PU10, DE45, PU20, FD24, AE25

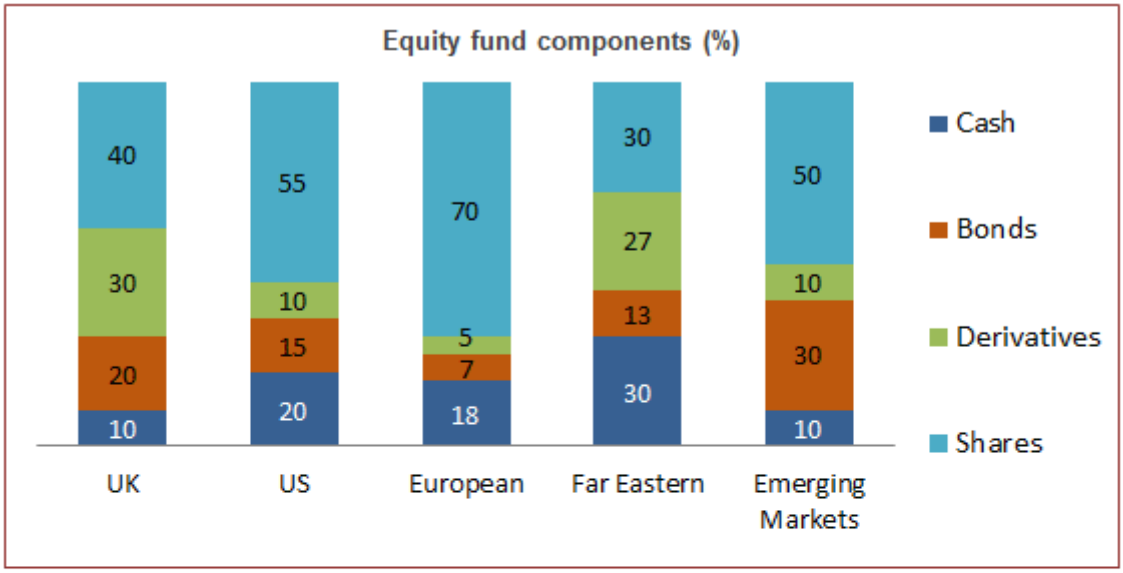
The information that we need is shown in the first table (non-European stores)

***Step 1** – Calculate the 3 for the price of 2 promotional offers*
DE45 promotional price per unit = 2/3 x $175 = $116.67
PU20 promotional price per unit = 2/3 x $200 = $133.33

***Step 2** – Calculate the 4 for the price of 3 promotional offers*
PU10 promotional price per unit = 3/4 x $150 = $112.50
FD24 promotional price per unit = 3/4 x $180 = $135.00

***Step 3** – Put these promotional prices into order alongside the fifth product (AE25) priced at $130 and not on promotion*

Thus the correct answer is (C) PU10, DE45, AE25, PU20, FD24



Equity fund values	UK	US	European	Far Eastern	Emerging Markets
Total value (£million)	55.6	24.3	52.1	26.2	38.9
Number of investors	3,450	1,460	3,295	1,575	2,660

Q6 On the previous day, the value of the shares held in the Emerging Markets Fund was 0.5% lower than the values given here. What was the previous day's value of shares in the Emerging Markets Fund?

(A)) £18.35 million
(B)) £18.40 million
(C)) £18.50 million
(D)) £19.35 million
(E)) £19.40 million

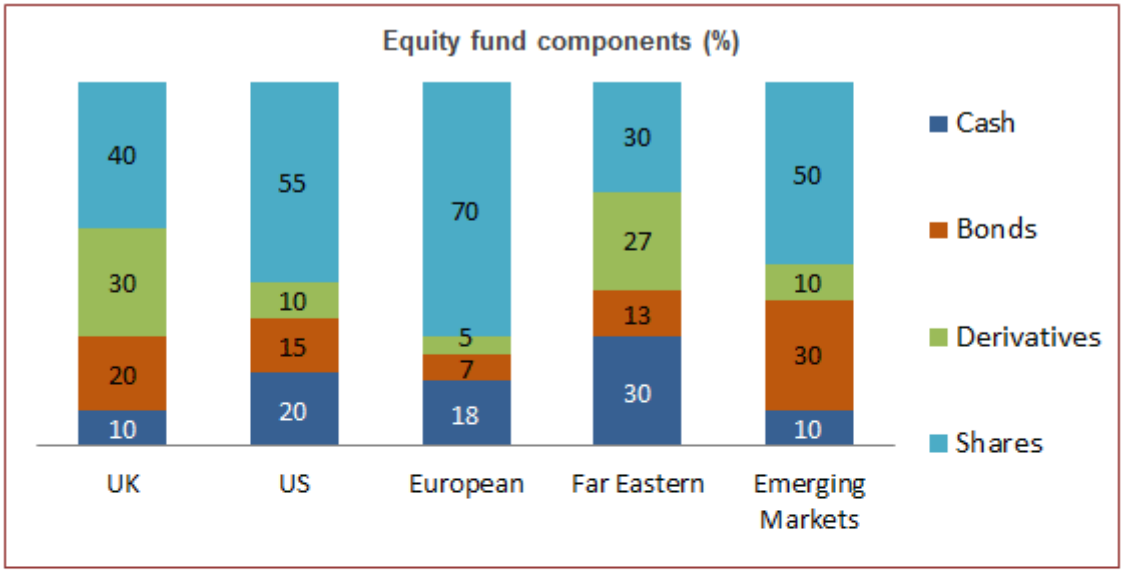
The information that we need is shown in both the graph and the table.

Step 1 *- Calculate the value of the shares component of the Emerging Markets Fund*

38.9 million x 50% = £19.45 million

Step 2 *– Calculate the previous day's value*
£19.45 million x .995 = £19.35 million

Thus the correct answer is (D) £19.35 million



Equity fund values	UK	US	European	Far Eastern	Emerging Markets
Total value (£million)	55.6	24.3	52.1	26.2	38.9
Number of investors	3,450	1,460	3,295	1,575	2,660

Q7 Which out of the Emerging Markets, UK and Far Eastern funds hold the lowest value of Cash and the lowest value of Bonds?

(A) UK (Cash); Far Eastern (Bonds)
(B) Emerging Markets (Cash); Far Eastern (Bonds)
(C)) Far Eastern (Cash); UK (Bonds)
(D) Emerging Markets (Cash); UK (Bonds)
(E) UK (Cash); Far Eastern (Cash)

The information that we need is shown in both the table and the graph.

Step 1 *- Calculate the value of the Cash held within each of the Funds in the question*
Cash value = total value x cash %
UK (Cash) = 55.6 x 10% = £5.56 million

See table below:

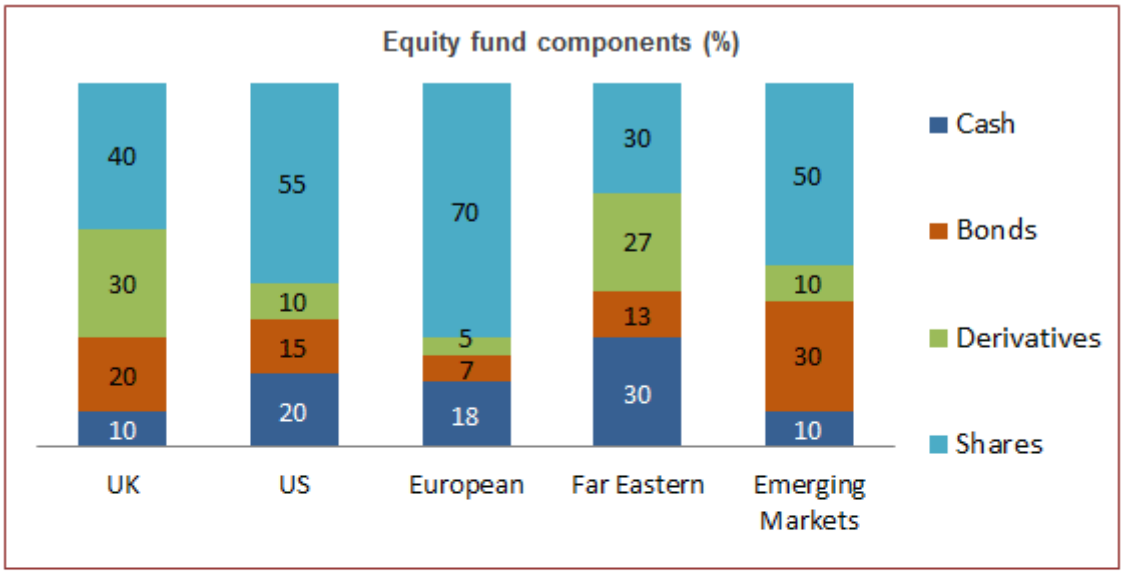
	Cash
UK	*£5.56 million*
Far Eastern	*£7.86 million*
Emerging Markets	***£3.89 million***

Step 2 *- Calculate the value of the Bonds held within each of the Funds in the question*
Bonds value = total value x bonds %
UK (Bonds) = 55.6 x 20% = £11.12 million

See table below:

	Bonds
UK	*£11.12 million*
Far Eastern	***£3.41 million***
Emerging Markets	*£11.67 million*

Thus the correct answer is (B) Emerging Markets (Cash); Far Eastern (Bonds)



Equity fund values	UK	US	European	Far Eastern	Emerging Markets
Total value (£million)	55.6	24.3	52.1	26.2	38.9
Number of investors	3,450	1,460	3,295	1,575	2,660

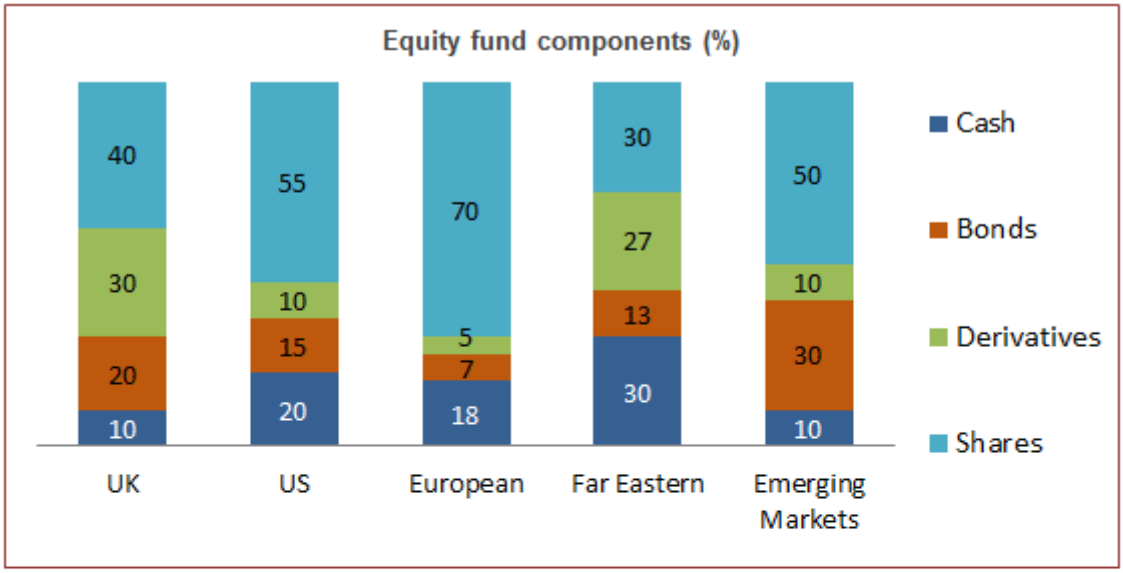
Q8 Which equity fund has the highest average value per individual investor?

(A)) UK Fund
(B) US Fund
(C) European Fund
(D) Far East Fund
(E) Emerging Markets Fund

The information that we need is shown in the table. Note there doesn't appear to be an obvious answer just from inspection so we must calculate each option.

Step 1 *- For each equity fund calculate the average value per individual investor.*
UK = 55.6/3,450 = £16,116
US = 24.3/1,460 = £16,644
European = 52.1/3,295 = £15,811
Far East = 26.2/1,575 = £16,635
Emerging Markets = 38.9/2,660 = £14,624

Thus the correct answer is (B) US Fund



Equity fund values	UK	US	European	Far Eastern	Emerging Markets
Total value (£million)	55.6	24.3	52.1	26.2	38.9
Number of investors	3,450	1,460	3,295	1,575	2,660

Q9 Which of the components of the UK and US equity funds have the highest and the lowest value?

(A) lowest is US Fund (Bonds); highest is UK Fund (Derivatives)
(B) lowest is US Fund (Shares); highest is UK Fund (Shares)
(C) lowest is UK Fund (Bonds); highest is US Fund (Shares)
(D) lowest is US Fund (Bonds); highest is UK Fund (Shares)
(E) lowest is US Fund (Derivatives); highest is UK Fund (Shares)

Tip: *Note that just from looking at the graph and table we know the overall US fund is smaller than the UK fund and the smallest fraction within the US find (10% to Derivatives) is not larger than the smallest fraction within the UK fund. So we can instantly say the smallest fraction is Derivatives in the US fund. As it happens there is only one multiple choice with this as an option so we know (E) is the correct answer.*

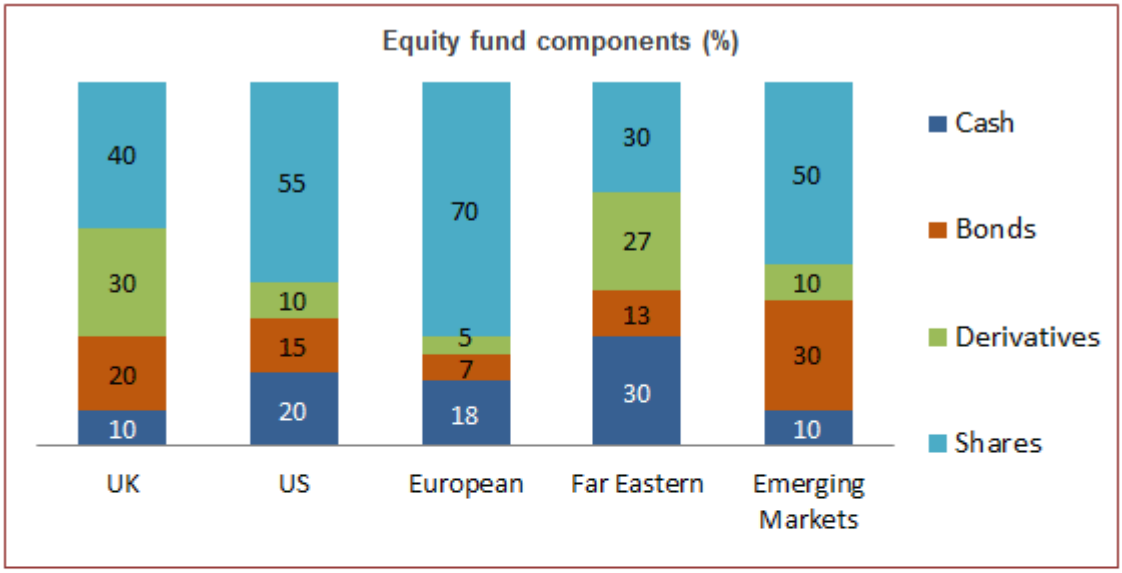
In full, the solution is as follows. The information that we need is shown in both the graph and the table.

Step 1 *- Calculate the value of each component of each equity fund, using this formula:*
Component value = Total value x Equity fund component %
UK Fund (Cash) = 55.6 x 10% = 5.56 (£million)

See table below for other component values:

	Component value (£million)			
	Cash	*Bonds*	*Derivatives*	*Shares*
UK	*5.56*	*11.12*	*16.68*	***22.24***
US	*4.86*	*3.65*	***2.43***	*13.37*

Thus the correct answer is (E) lowest is US Fund (Derivatives); highest is UK Fund (Shares)



Equity fund values	UK	US	European	Far Eastern	Emerging Markets
Total value (£million)	55.6	24.3	52.1	26.2	38.9
Number of investors	3,450	1,460	3,295	1,575	2,660

Q10 Which equity fund holding(s) hold less than double the number of Shares compared to Bonds?

(A)) UK
(B) US
(C) Emerging Markets
(D)) UK, US
(E)) UK, US, Emerging Markets

The information that we need is shown in the graph.

Step 1 *- Calculate the Shares: Bonds ratios for each equity fund*

	Bonds	*Shares*
UK	*20*	*40*
US	*15*	*55*
European	*7*	*70*
Far Eastern	*13*	*30*
Emerging Markets	*30*	*50*

The UK fund has exactly double the number of Shares compared to Bonds. Only the Emerging Markets has less than double the number of Shares compared to Bonds.

Thus the correct answer is (C) Emerging Markets

MAINTENANCE COSTS (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

Q11 Averaged across the Manufacturing Plants, put the average values for each of the maintenance costs in decreasing size order, starting with the highest.

(A) Servicing, Administration, Misc., Rent, Insurance, Utilities
(B) Servicing, Administration, Rent, Misc., Utilities, Insurance
(C) Servicing, Administration, Rent, Misc., Insurance, Utilities
(D) Servicing, Administration, Misc., Rent, Utilities, Insurance
(E)) None of these

Step 1 *- Calculate the average for each maintenance cost:*
Insurance = 192.2
Servicing = 1,000
Rent = 295
Utilities = 185.8
Administration = 589
Misc = 450

Thus the correct answer is (A) Servicing, Administration, Misc., Rent, Insurance, Utilities

MAINTENANCE COSTS (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

Q12 For which manufacturing plant(s) are the Administration: Rent costs in the ratio 12:5?

(A) Bordeaux
(B) Berlin
(C) Midlands and Glasgow
(D) Berlin and Midlands
(E)) Glasgow and Bordeaux

Step 1 *- Calculate the Administration: Rent cost ratio for each production plant, as follows:*

Midlands	*650:300 =*	*13:6*
Bordeaux	*600:250 =*	*12:5*
Berlin	*450:275 =*	*18:11*
Amsterdam	*525:350 =*	*21:14*
Glasgow	*720:300 =*	*12:5*

Thus the correct answer is (E) Glasgow and Bordeaux

MAINTENANCE COSTS (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

Q13 For the Glasgow manufacturing plant, which maintenance cost(s) represent approximately 7% of the total costs?

(A)) Rent and Utilities
(B) Rent
(C)) Utilities
(D) Insurance
(E) Insurance and Utilities

Step 1 *- For the Glasgow plant, calculate the total costs*
195 + 875 + 300 + 189 + 720 + 425 = 2,704

Step 2 *- For the Glasgow plant, calculate each cost as a % of the total cost*

Insurance = 100% x 195/2,704 = 7%
Servicing = 100% x 875/2,704 = 32%
Rent = 100% x 300/2,704 = 11%
Utilities = 100% x 189/2,704 = 7%
Administration = 100% x 720/2,704 = 27%
Misc = 100% x 425/2,704 = 16%

Tip: *To save time, you can stop after you've calculated 7% for Insurance and just scan across the row to see if any other costs are close to £195. You will see that Utilities are.*

Thus the correct answer is (E) Insurance and Utilities

MAINTENANCE COSTS (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

Q14 What is the average annual cost for servicing each of the 5 manufacturing plants (assume 4 weeks in a month)?

(A) £3,300
(B) £12,400
(C) £16,500
(D) £39,600
(E) £48,000

Step 1 *– Total the servicing costs*
1,050 + 1,100 + 950 + 1,025 + 875 = £5,000 per week

Step 2 *– Calculate the monthly cost*
5,000 x 4 = £20,000 per month

Step 3 *– Calculate the average monthly cost*
£20,000 / 5 = £4,000 per month

Step 4 *– Calculate the average annual cost*
4,000 x 12 = £48,000

Thus the correct answer is (E) £48,000

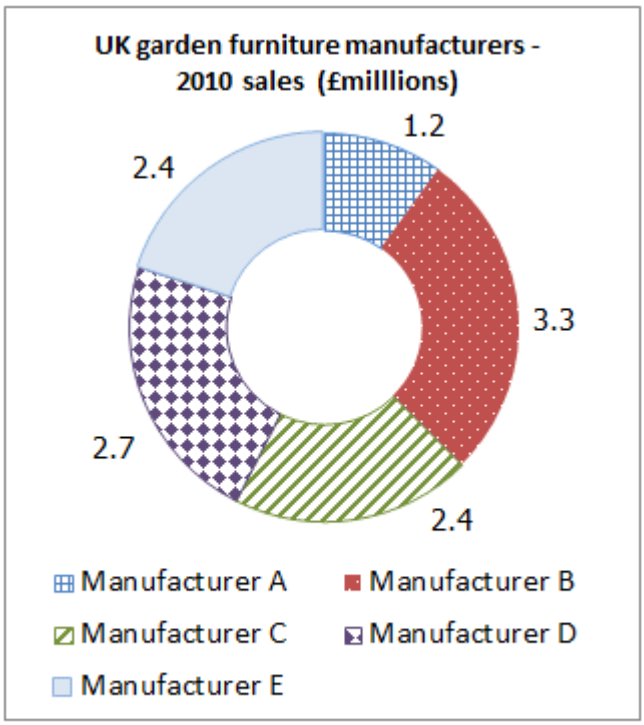
MAINTENANCE COSTS (£ per week)						
Manufacturing Plant	Insurance	Servicing	Rent	Utilities	Administration	Misc.
Midlands	196	1,050	300	95	650	525
Bordeaux	204	1,100	250	236	600	400
Berlin	212	950	275	164	450	400
Amsterdam	154	1,025	350	245	525	500
Glasgow	195	875	300	189	720	425

Q15 Which two manufacturing plants have the same total maintenance costs per week?

(A) Midlands and Glasgow
(B) Bordeaux and Glasgow
(C) Bordeaux and Amsterdam
(D) Midlands and Amsterdam
(E)) None of these

Step 1 *- Calculate the total weekly maintenance costs for each production plant*
Midlands = 196 + 1,050 + 300 + 95 + 650 + 525 = 2,816
Bordeaux = 204 + 1,100 + 250 + 236 + 600 + 400 = 2,790
Berlin = 212 + 950 + 275 + 164 + 450 + 400 =2,451
Amsterdam = 154 + 1,025 + 350 + 245 + 525 + 500 = 2,799
Glasgow = 195 + 875 + 300 + 189 + 720 + 425 = 2,704

Thus the correct answer is (E) None of these



	COMPANY C SALES (£)	
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

Q16 Which garden furniture manufacturer has 22.5% of the UK market in terms of 2010 annual sales?

(A) Manufacturer A
(B) Manufacturer B
(C) Manufacturer C
(D) Manufacturer D
(E) Manufacturer E

The information that you need is shown in the pie-chart.

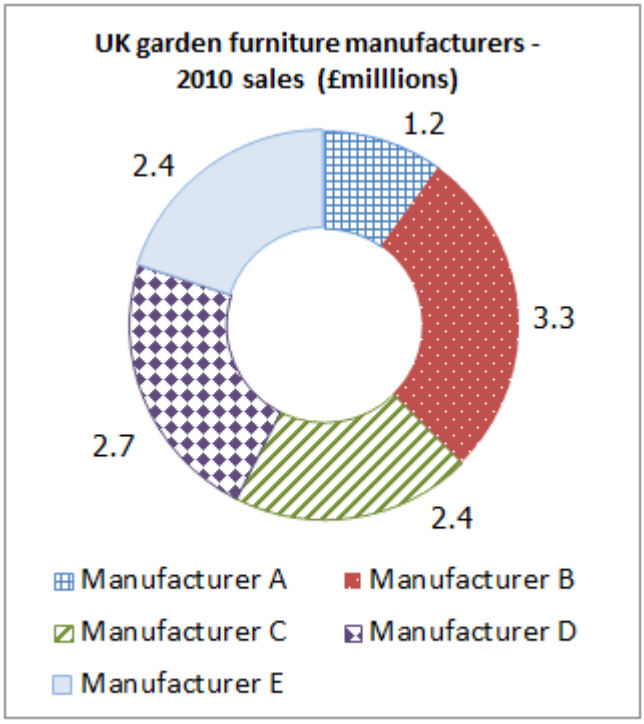
Step 1 *– Calculate the total annual sales for all furniture manufacturers*
1.2 + 3.3 + 2.4 + 2.7 + 2.4 = £12 million

Step 2 *– Next, the quickest way to complete this question is to calculate 22.5% of the 12 million and see which manufacturer has this sales value. So 22.5% of 12 is 2.7. We immediately see that Manufacturer D has sales of 2.7 (ignoring any units).*

Alternatively, the slower way would be to calculate the % of the UK market held by each furniture manufacturer:

Manufacturer A = 1.2/12 x 100% = 10%
Manufacturer B = 3.3/12 x 100% = 27.5%
Manufacturer C = 2.4/12 x 100% = 20%
Manufacturer D = 2.7/12 x 100% = 22.5%
Manufacturer E = 2.4/12 x 100% = 20%

Thus the correct answer is (D) Manufacturer D



	COMPANY C SALES (£)	
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

Q17 Manufacturers B and D each aim to increase their annual sales from 2010 to 2011 by a quarter. Manufacturers A, C and E each aim to grow their annual sales by a fifth. Assuming all companies meet these targets, what will be 2011's total furniture manufacturer sales (to the nearest £million)?

(A)) £13 million
(B)) £14 million
(C)) £15 million
(D)) £16 million
(E)) £17 million

The information that you need is shown in the pie-chart.

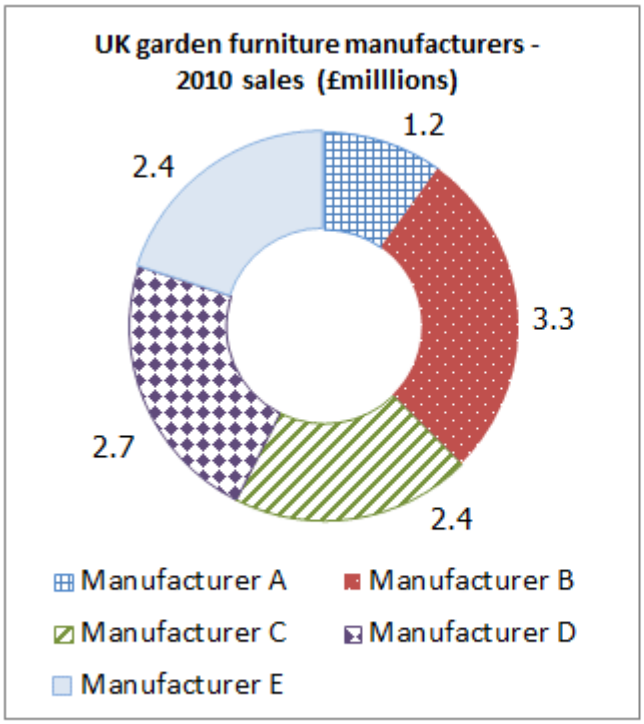
Step 1 *- Calculate the 2011 targets for each garden furniture manufacturer*

Manufacturer A: 1.2 x 1.2 = 1.44
Manufacturer B: 3.3 x 1.25 = 4.125
Manufacturer C: 2.4 x 1.2 = 2.88
Manufacturer D: 2.7 x 1.25 = 3.375
Manufacturer E: 2.4 x 1.2 = 2.88

Step 2 *– Calculate the total 2011 target for all garden furniture manufacturers*
1.44 + 4.125 + 2.88 + 3.375 + 2.88 = 14.7

Step 3 *– To the nearest £million = £15 million*

Note: in this question we were lucky that £14.7 million was not an available answer. Sometimes questions deliberately include the answer not rounded as required, to catch you out.



	COMPANY C SALES (£)	
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

Q18 Which region showed the second largest absolute difference in Company C sales between 2009 and 2010?

(A) Northern
(B) Central
(C) Southern
(D) Eastern
(E) Western

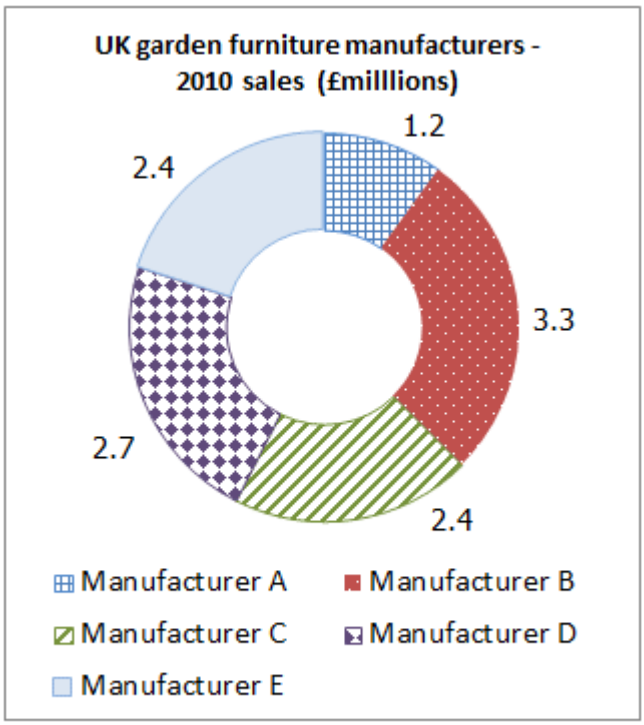
Tip - *The word "absolute" in the question means we are considering the value of the change, not the percentage change.*

The information that you need is shown in the table.

Step 1 *- Calculate the change in Company C sales (2009-2010) for each region*

Northern: 278,500 – 312,500 = -34,000
Central: 470,400 – 396,700 = 73,700
Southern: 502,000 – 546,300 = -44,300
Eastern: 643,100 – 595,500 = 47,600
Western: 506,000 – 529,000 = -23,000

Thus the correct answer is (D) Eastern



	COMPANY C SALES (£)	
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

Q19 What is the percentage increase in Company C's total sales for 2010 compared its 2009 total sales?

(A) 0.83%
(B) 0.84%
(C) 0.85%
(D) 0.86%
(E) 0.87%

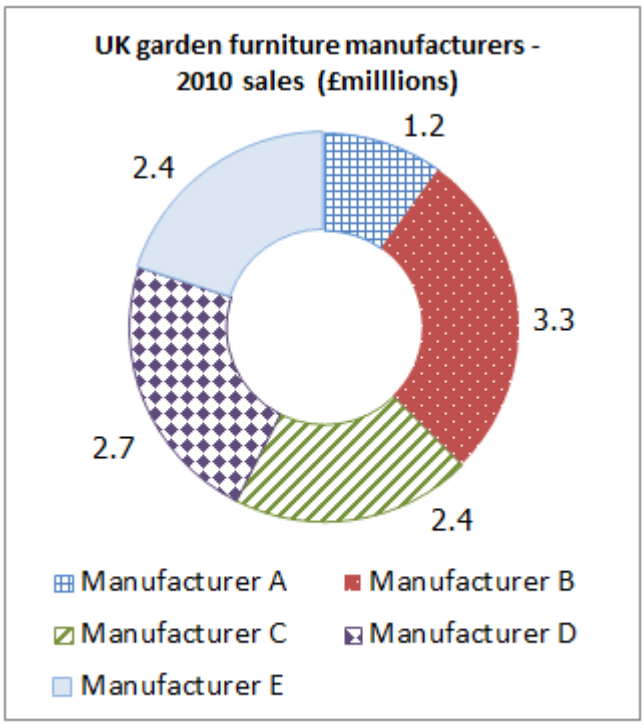
The information that you need is shown in the table.

Step 1 *– Calculate 2009's total sales*
312,500 + 396,700 + 546,300 + 595,500 + 529,000 = 2,380,000

Step 2 *– Calculate 2010's total sales*
278,500 + 470,400 + 502,000 + 643,100 + 506,000 = 2,400,000

Step 3 *– Calculate the % difference*
2,400,000 / 2,380,000 = 1.0084 which is a 0.84% increase.

Thus the correct answer is (B) 0.84%



	COMPANY C SALES (£)	
REGION	2009	2010
Northern	312,500	278,500
Central	396,700	470,400
Southern	546,300	502,000
Eastern	595,500	643,100
Western	529,000	506,000

Q20 If Company C's sales in 2009 were in the ratio of 8:7 for online: offline sales, what were the offline sales (to the nearest £1,000)?

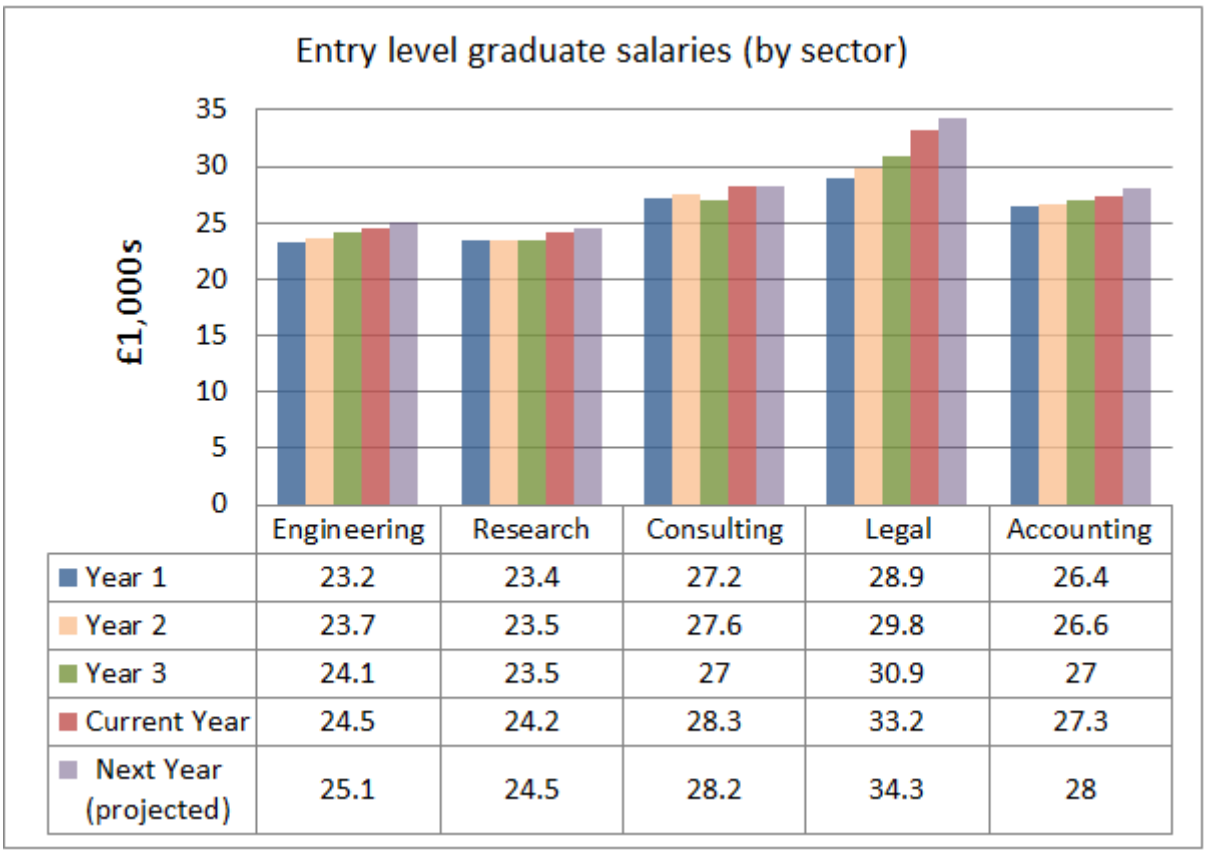
(A) £110,000
(B) £1,000,000
(C) £1,100,000
(D) £1,110,000
(E) £1,111,000

Step 1 *– Use Manufacturer C's 2009 total sales figure from the previous question i.e. 2,380,000 (312,500 + 396,700 + 546,300 + 595,500 + 529,000)*

Step 2 *– Put this figure into the question's ratio*
Online sales + offline sales = 2,380,000
Offline sales = (2,380,000 x 7)/ (7+8) = 1,110,667

Step 3 *- To the nearest £1,000 = 1,111,000*

Thus the correct answer is (E) £1,111,000



	Engineering	Research	Consulting	Legal	Accounting
Year 1	23.2	23.4	27.2	28.9	26.4
Year 2	23.7	23.5	27.6	29.8	26.6
Year 3	24.1	23.5	27	30.9	27
Current Year	24.5	24.2	28.3	33.2	27.3
Next Year (projected)	25.1	24.5	28.2	34.3	28

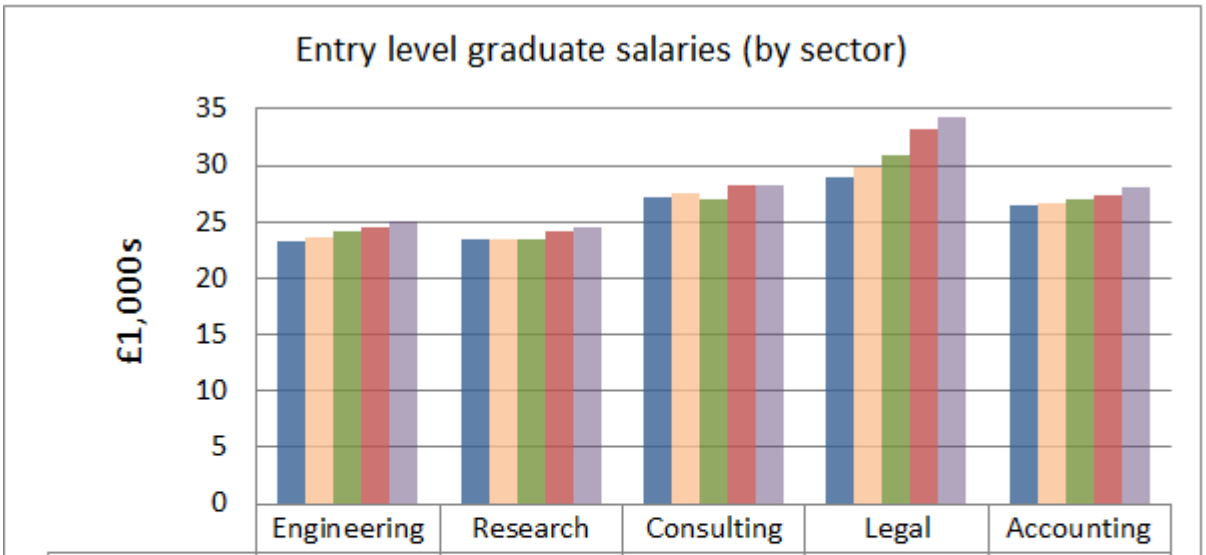
Q21 Assume that the percentage change trends between the Current Year and Next Year continue at the same rate for a subsequent year. What's the subsequent year's average entry level graduate salary (to the nearest £500)?

(A) £28,000
(B) £28,500
(C) £29,000
(D) £29,500
(E) Can't tell from data

It might be tempting to do the following calculation, however since we don't know how many graduates there are in each sector we cannot calculate the average salary. For example if Engineering has 1,000 graduates and Research has 10, it is not true to add up the totals and divide by the number of sectors (five).

Thus the answer is (E) Can't tell from data.

Don't be tempted to do this:
***Step 1** – Calculate the subsequent year's entry level graduate salary for each sector*
***Step 2** – Calculate the average*
***Step 3** – to the nearest £500 = £28,500*



	Engineering	Research	Consulting	Legal	Accounting
Year 1	23.2	23.4	27.2	28.9	26.4
Year 2	23.7	23.5	27.6	29.8	26.6
Year 3	24.1	23.5	27	30.9	27
Current Year	24.5	24.2	28.3	33.2	27.3
Next Year (projected)	25.1	24.5	28.2	34.3	28

Q22 In Year 3 a company paid the average entry graduate starting salaries when recruiting 15 graduates for a consultancy role and 6 graduates for a research role. What was the average salary per recruited graduate?

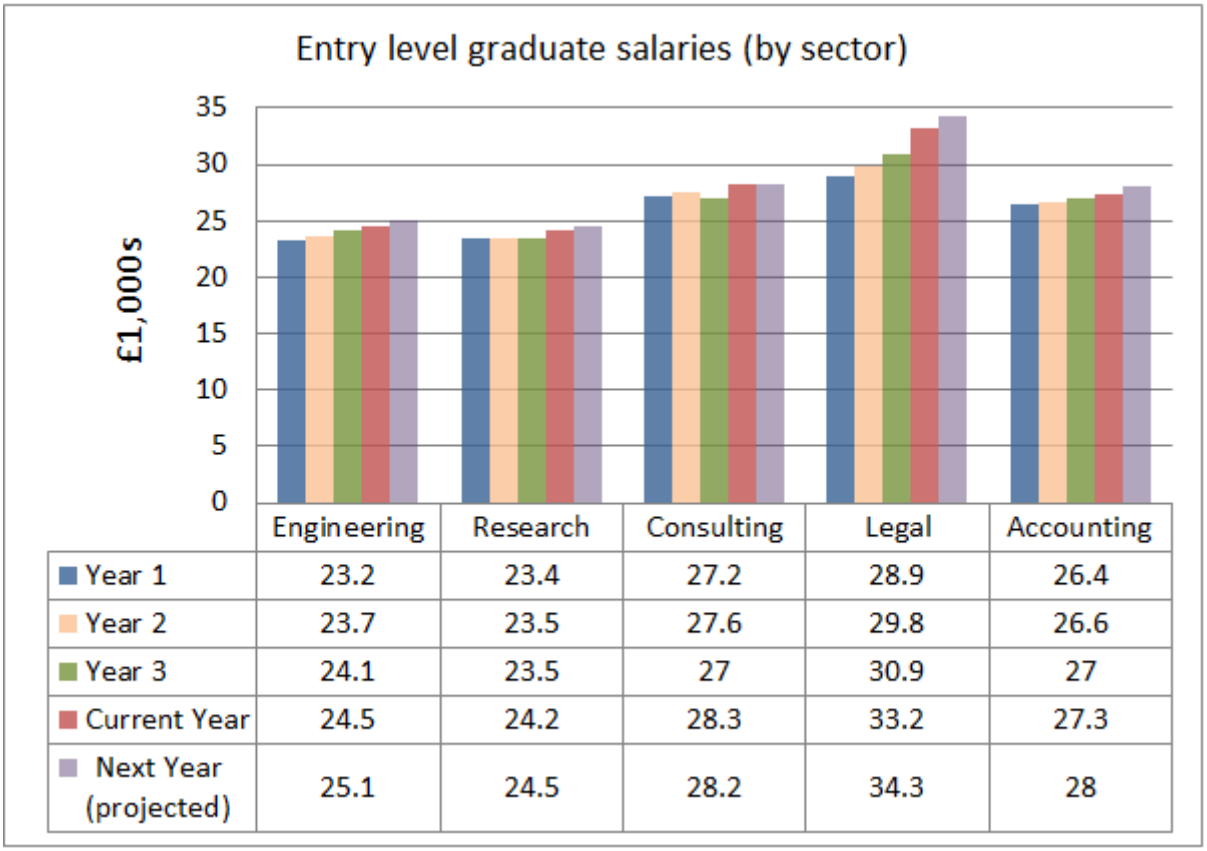
(A) £26,000
(B) £26,114
(C) £26,429
(D) £26,500
(E) £27,000

Step 1 *– Total the salaries for 15 graduates (consultancy)*
15 x 27,000 = 405,000

Step 2 *– Total the salaries for 6 graduates (research)*
6 x 23,500 = 141,000

Step 3 *– Calculate the average salary per graduate*
(405,000 + 141,000)/21 = £26,000

Thus the correct answer is (A) £26,000



	Engineering	Research	Consulting	Legal	Accounting
Year 1	23.2	23.4	27.2	28.9	26.4
Year 2	23.7	23.5	27.6	29.8	26.6
Year 3	24.1	23.5	27	30.9	27
Current Year	24.5	24.2	28.3	33.2	27.3
Next Year (projected)	25.1	24.5	28.2	34.3	28

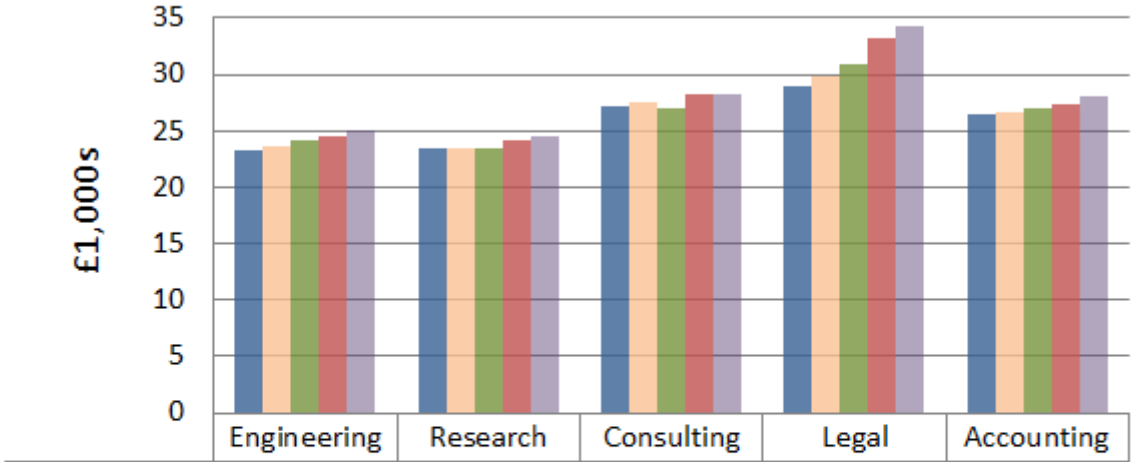
Q23 Which sector has seen the smallest percentage increase in graduate entry level salary between Year 2 and the Current Year?

(A) Engineering
(B)) Research
(C)) Consulting
(D)) Legal
(E) Accounting

Step 1 *- Calculate the % increase for each sector*

Engineering: (24.5 – 23.7)/23.7 = 3.4%
Research: (24.2 – 23.5)/23.5 = 3.0%
Consulting: (28.3 – 27.6)/27.6 = 2.5%
Legal: (33.2 – 29.8)/29.8 = 11.4%
Accounting: (27.3 – 26.6)/26.6 = 2.6%

Thus the correct answer is (C) Consulting



	Engineering	Research	Consulting	Legal	Accounting
Year 1	23.2	23.4	27.2	28.9	26.4
Year 2	23.7	23.5	27.6	29.8	26.6
Year 3	24.1	23.5	27	30.9	27
Current Year	24.5	24.2	28.3	33.2	27.3
Next Year (projected)	25.1	24.5	28.2	34.3	28

Q24 The current year's entry level graduate salaries for working in logistics and retail are £25,000 and £24,000 respectively. If these sectors experience the same percentage change as the legal sector over the same period, what's next year's predicted entry level graduate salary in the logistics and retail sectors (to the nearest £100)?

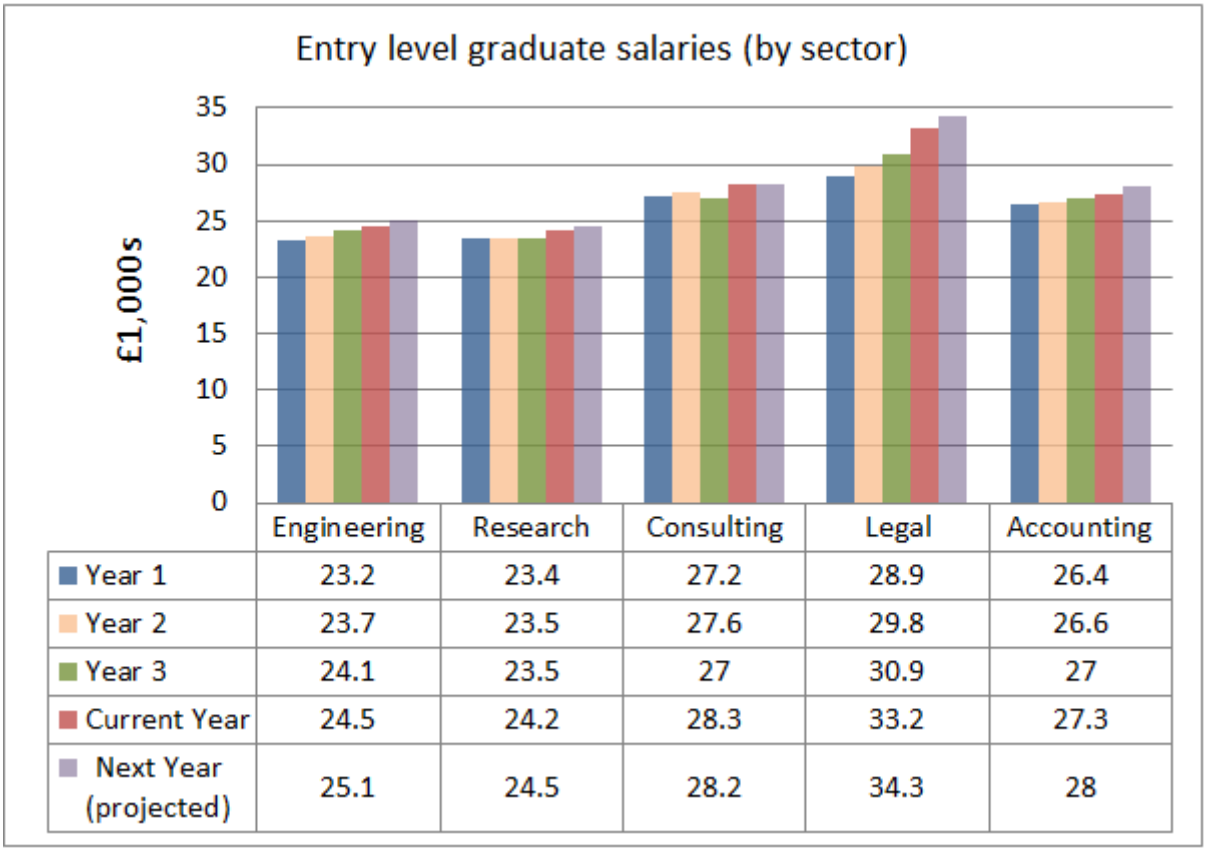
(A) £24,800 (logistics); £25,800 (retail)
(B) £25,100 (logistics); £25,300 (retail)
(C) £25,500 (logistics); £25,000 (retail)
(D) £25,800 (logistics); £24,800 (retail)
(E) Can't tell from data

Step 1 *– Calculate the % increase in legal sector salaries between the current year and next year*
100% x (34.3 – 33.2)/33.2 = 3.31%

Step 2 *– Apply this % increase to the entry level graduate salaries (logistics)*
103.31% x £25,000 = £25,828

Step 3 *– Apply this % increase to the entry level graduate salaries (retail)*
103.31% x £24,000 = £24,794

Thus the correct answer is (D) £25,800 (logistics); £24,800 (retail)



	Engineering	Research	Consulting	Legal	Accounting
Year 1	23.2	23.4	27.2	28.9	26.4
Year 2	23.7	23.5	27.6	29.8	26.6
Year 3	24.1	23.5	27	30.9	27
Current Year	24.5	24.2	28.3	33.2	27.3
Next Year (projected)	25.1	24.5	28.2	34.3	28

Q25 Which of the 5 sectors had the lowest difference in entry level graduate salary between Year 3 and the Current Year?

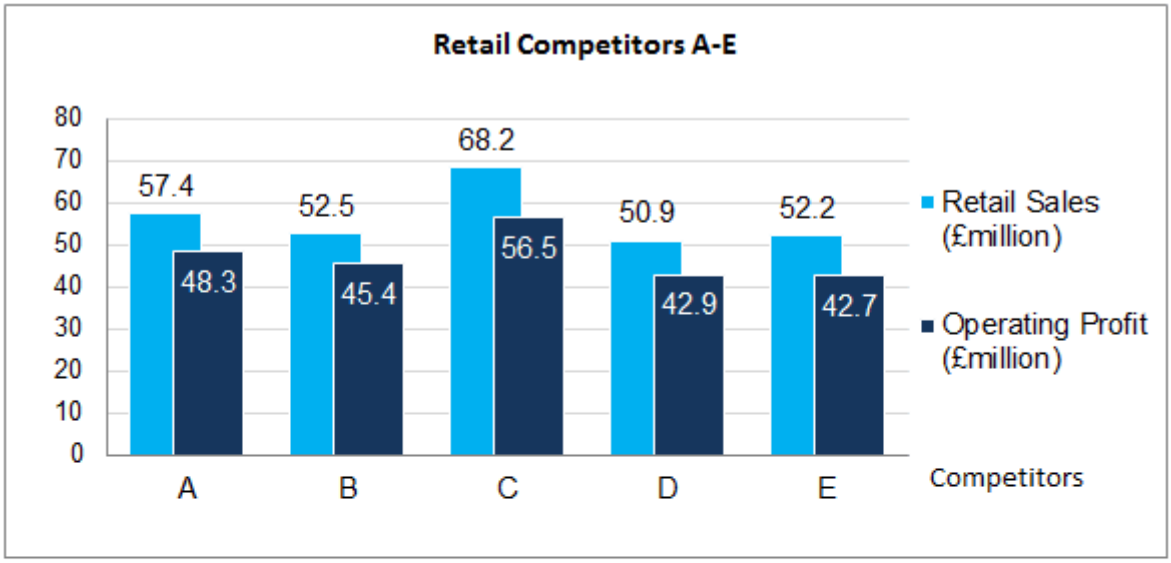
(A) Engineering
(B) Research
(C)) Consulting
(D)) Legal
(E) Accounting

Step 1 *- Calculate the change for each sector*

Engineering: 24.5 – 24.1 = 0.4
Research: 24.2 – 23.5 = 0.7
Consulting: 28.3 – 27 = 1.3
Legal: 33.2 – 30.9 = 2.3
Accounting: 27.3 – 27 = 0.3

Note *- Because the question asks for 'difference' not percentage change, we must calculate the absolute difference. As it happens, if you had worked out the percentage change by mistake, you would still have arrived at (E) Accounting.*

Thus the correct answer is (E) Accounting



	Competitor				
	A	B	C	D	E
Staff (1,000s)	325	180	295	204	154
Monthly customers (millions)	4.2	2.2	4.5	3.1	2.2
Number of countries of operation	38	30	22	28	32

Q26 Which competitor(s) has less than 100,000 customers per day (assume 30 days per month)?

(A) All competitors
(B) Competitor B
(C)) Competitor E
(D)) Competitors B and E
(E)) Competitors B, D and E

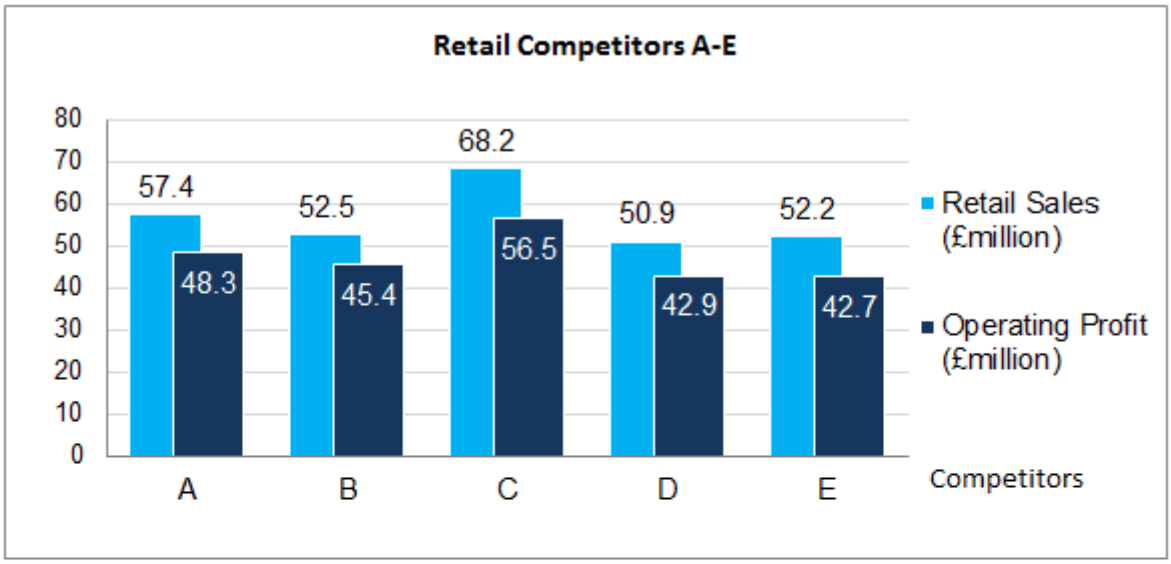
The information that you need is shown in the table.

Step 1 *– Calculate the number of daily customers for each competitor, as shown below:*

Per month	*4.2*	*2.2*	*4.5*	*3.1*	*2.2*
Per day (millions)	*/30 = 0.14*	*/30 = 0.073*	*/30 = 0.15*	*/30 = 0.103*	*/30 = 0.073*

These figures are in millions.

Thus the correct answer is (D) Competitors B and E



	Competitor				
	A	B	C	D	E
Staff (1,000s)	325	180	295	204	154
Monthly customers (millions)	4.2	2.2	4.5	3.1	2.2
Number of countries of operation	38	30	22	28	32

Q27 Which Competitor has the lowest average number of staff per country of operation?

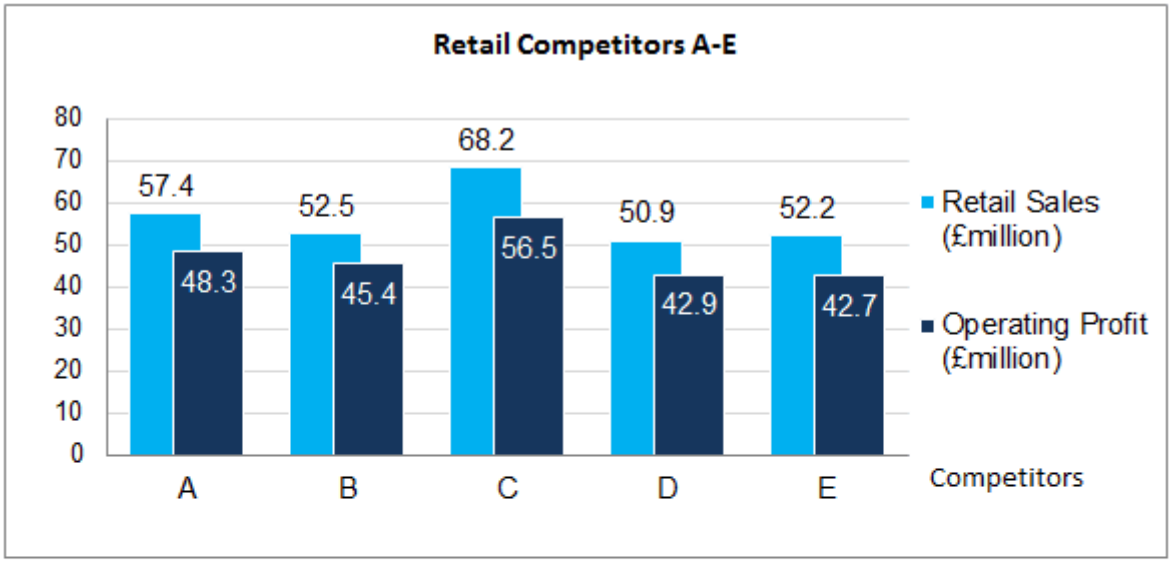
(A) Competitor A
(B) Competitor B
(C)) Competitor C
(D)) Competitor D
(E) Competitor E

The information that you need is shown in the table.

Step 1 *- Calculate the average number of staff per country of operation for each Competitor, as shown below*

	A	*B*	*C*	*D*	***E***
Staff / Countries of operation	*325,000/38*	*180,000/30*	*295,000/22*	*204,000/28*	***154,000/32***
	= 8,553	*= 6,000*	*= 13,409*	*= 7,286*	***= 4,813***

Thus the correct answer is (E) Competitor E



	Competitor				
	A	B	C	D	E
Staff (1,000s)	325	180	295	204	154
Monthly customers (millions)	4.2	2.2	4.5	3.1	2.2
Number of countries of operation	38	30	22	28	32

Q28 If Competitors B to E make up 85% of the business sector in which they operate (based upon operating profits), approximately what are the total operating profits of the other companies in the same business sector?

(A)) £3 million
(B)) £28 million
(C)) £33 million
(D)) £35 million
(E)) £221 million

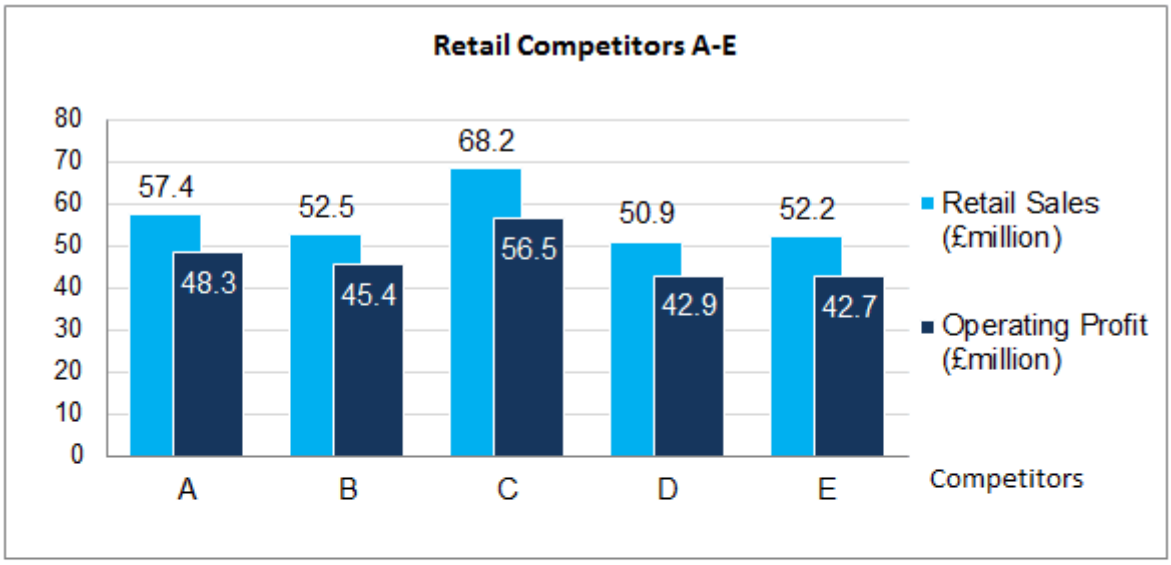
The information that you need is shown in the graph.

Step 1 *– Calculate the total operating profits for Competitors B to E*
45.4 + 56.5 + 42.9 + 42.7 = £187.5 million

Step 2 *– Calculate operating profits for the entire sector*
187.5 ÷ 0.85 = 220.6 million.

Step 3 *– Calculate other companies' operating profits*
220.6 x 15% = 33.09 million = £33 million approx.

Thus the correct answer is (C) £33 million



	Competitor				
	A	B	C	D	E
Staff (1,000s)	325	180	295	204	154
Monthly customers (millions)	4.2	2.2	4.5	3.1	2.2
Number of countries of operation	38	30	22	28	32

Q29 Competitor B has an additional business that generates an additional 8% to the Retail Sales shown. Competitors A and C have additional businesses that generate 7% and 4% additional revenue respectively. What's the total of these additional sales streams for Competitors A, B and C combined (to the nearest £million)?

(A)) £9 million
(B)) £10 million
(C)) £11 million
(D)) £12 million
(E)) £13 million

The information that you need is shown in the graph.

Step 1 *– Calculate the additional sales for Competitor B*
52.5 x 8% = 4.20

Step 2 *– Calculate the additional sales for Competitor A*
57.4 x 7% = 4.02

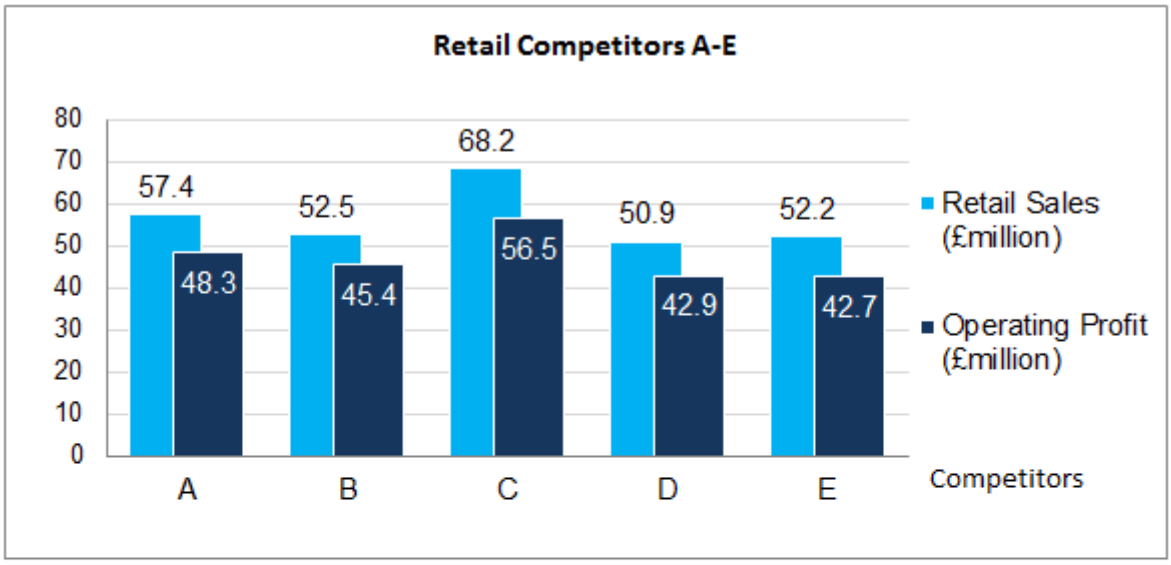
Step 3 *– Calculate the additional sales for Competitor C*
68.2 x 4% = 2.73

Step 4 *– Calculate the total sales*

4.20 + 4.02 + 2.73 = 10.95

Step 5 *– To the nearest £million*
10.95 = £11 million

Thus the correct answer is (C) £11 million



	Competitor				
	A	B	C	D	E
Staff (1,000s)	325	180	295	204	154
Monthly customers (millions)	4.2	2.2	4.5	3.1	2.2
Number of countries of operation	38	30	22	28	32

Q30 Which two Competitors average the same approximate number of customers per country of operation?

(A)) Competitor A and Competitor D
(B)) Competitor B and Competitor D
(C)) Competitor A and Competitor C
(D)) Competitor B and Competitor E
(E)) No two competitors

The information that you need is shown in the table.

Step 1 *- Calculate the average number of customers per country of operation for each Competitor*

Competitor A = 4.2/38 = 0.111
Competitor B = 2.2/30 = 0.073
Competitor C = 4.5/22 = 0.205
Competitor D = 3.1/28 = 0.111
Competitor E = 2.2/32 = 0.069

Thus the correct answer is (A) Competitor A and Competitor D

NUMERICAL REASONING TEST 6

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

TestStreams.com

Total EU population (1st Jan 2012) = 480 million					
	Belgium	**Denmark**	**Ireland**	**Hungary**	**Greece**
Total Population (millions)	10.4	5.4	4.1	10.1	10.8
Pecentage of Population in Employment (by gender)					
- Female	37.4	34.6	41.4	39.5	36.8
- Male	35.6	58.2	38.8	38.4	34.4
Population Change Factors (per 1,000 population)					
- Increase from births	11.1	12	15.2	13.1	9.6
- Decrease from deaths	9.8	10.3	6.9	10.4	9.5
- Net migration inflow	3.4	0.9	11.8	1.8	3.1

Q1 Which country has the largest number of males in employment?

(A) Belgium
(B) Denmark
(C) Ireland
(D)) Hungary
(E)) Greece

Step 1 *– Calculate the number of males that are employed in Belgium, Hungary and Greece. Note that Denmark and Ireland have approximately half the total population of the other three countries and so can be ruled out immediately to save time.*

Belgium = 10.4 x 35.6% = 3.7 million
(Denmark = 5.4 x 58.2% = 3.14 million)
(Ireland = 4.1 x 38.8% = 1.6 million)
Hungary = 10.1 x 38.4% = 3.9 million
Greece = 10.8 x 34.4% = 3.7 million

Thus the correct answer is (D) Hungary

Total EU population (1st Jan 2012) = 480 million					
	Belgium	**Denmark**	**Ireland**	**Hungary**	**Greece**
Total Population (millions)	10.4	5.4	4.1	10.1	10.8
Pecentage of Population in Employment (by gender)					
- Female	37.4	34.6	41.4	39.5	36.8
- Male	35.6	58.2	38.8	38.4	34.4
Population Change Factors (per 1,000 population)					
- Increase from births	11.1	12	15.2	13.1	9.6
- Decrease from deaths	9.8	10.3	6.9	10.4	9.5
- Net migration inflow	3.4	0.9	11.8	1.8	3.1

Q2 What percentage do the five countries shown represent of the total EU population?

(A) 7.5%
(B) 8.5%
(C) 9.5%
(D) 10.5%
(E) 11.5%

Step 1 *– Total the population of the five countries*

10.4 + 5.4 + 4.1 + 10.1 + 10.8 = 40.8 million
Step 2 – Calculate the % of the total EU population
40.8 / 480 = 8.5%

Thus the correct answer is (B) 8.5%

Total EU population (1st Jan 2012) = 480 million					
	Belgium	**Denmark**	**Ireland**	**Hungary**	**Greece**
Total Population (millions)	10.4	5.4	4.1	10.1	10.8
Pecentage of Population in Employment (by gender)					
- Female	37.4	34.6	41.4	39.5	36.8
- Male	35.6	58.2	38.8	38.4	34.4
Population Change Factors (per 1,000 population)					
- Increase from births	11.1	12	15.2	13.1	9.6
- Decrease from deaths	9.8	10.3	6.9	10.4	9.5
- Net migration inflow	3.4	0.9	11.8	1.8	3.1

Q3 Assuming that there are no other population factors than those shown in the table, what will be the annual population change of the five countries combined?

(A) 143,900
(B) 167,550
(C) 225,340
(D) 368,200
(E) 44.7 million

Step 1 *– Calculate each country's change in population due to the population factors*
Population change = increase from births – decrease from deaths + net migration

Belgium = 11.1 - 9.8 + 3.4 = 4.7
Denmark = 12.0 – 10.3 + 0.9 = 2.6
Ireland = 15.2 – 6.9 + 11.8 = 20.1
Hungary = 13.1 – 10.4 + 1.8 = 4.5
Greece = 9.6 – 9.5 + 3.1 = 3.2

Step 2 *– Calculate the change per 1,000 members of population*

Belgium = 4.7 x 10,400 = 48,880
Denmark = 2.6 x 5,400 = 14,040
Ireland = 20.1 x 4,100 = 82,410
Hungary = 4.5 x 10,100 = 45,450
Greece = 3.2 x 10,800 = 34,560

Step 3 *– Sum the figures for each country to calculate the population change*
48,880 + 14,040 + 82,140 + 45,450 + 34,560 = 225,340

Thus the correct answer is (C) 225,340

Total EU population (1st Jan 2012) = 480 million					
	Belgium	**Denmark**	**Ireland**	**Hungary**	**Greece**
Total Population (millions)	10.4	5.4	4.1	10.1	10.8
Pecentage of Population in Employment (by gender)					
- Female	37.4	34.6	41.4	39.5	36.8
- Male	35.6	58.2	38.8	38.4	34.4
Population Change Factors (per 1,000 population)					
- Increase from births	11.1	12	15.2	13.1	9.6
- Decrease from deaths	9.8	10.3	6.9	10.4	9.5
- Net migration inflow	3.4	0.9	11.8	1.8	3.1

Q4 If the population of Belgium increases at the same %age rate as shown for 2012, in what year will the population reach 10.6 million?

(A) 2015
(B) 2016
(C) 2017
(D) 2018
(E) 2019

Step 1 *– Calculate change in population due to the population factors*
Population change = increase from births – decrease from deaths + net migration.
For Belgium this is: 11.1 - 9.8 + 3.4 = 4.7 (per thousand of the population)
So 4.7 x 10,400 = 48,880 extra people in 2012.

The next step is to work this out as a percentage increase, not just take the number 48,880 and add it to each year.

48,880 ÷ 10,400,000 x 100 = 0.47% increase.

Step 2 *– Calculate the population for subsequent years using this percentage growth.*
2013: 10,400,000 + 48,880 = 10,448,880
2014: 10,448,880 x 1.0047 = 10,497,990
2015: 10,497,990 x 1.0047 = 10,547,330
2016: 10,547,330 x 1.0047 = 10,596,903
2017: 10,596,903 x 1.0047 = 10,696,748

So on day one of 2017 the population is 10,696,748, which means the 10.6m barrier must have been achieved during 2016.

Thus the correct answer is (B) 2016.

Total EU population (1st Jan 2012) = 480 million					
	Belgium	**Denmark**	**Ireland**	**Hungary**	**Greece**
Total Population (millions)	10.4	5.4	4.1	10.1	10.8
Pecentage of Population in Employment (by gender)					
- Female	37.4	34.6	41.4	39.5	36.8
- Male	35.6	58.2	38.8	38.4	34.4
Population Change Factors (per 1,000 population)					
- Increase from births	11.1	12	15.2	13.1	9.6
- Decrease from deaths	9.8	10.3	6.9	10.4	9.5
- Net migration inflow	3.4	0.9	11.8	1.8	3.1

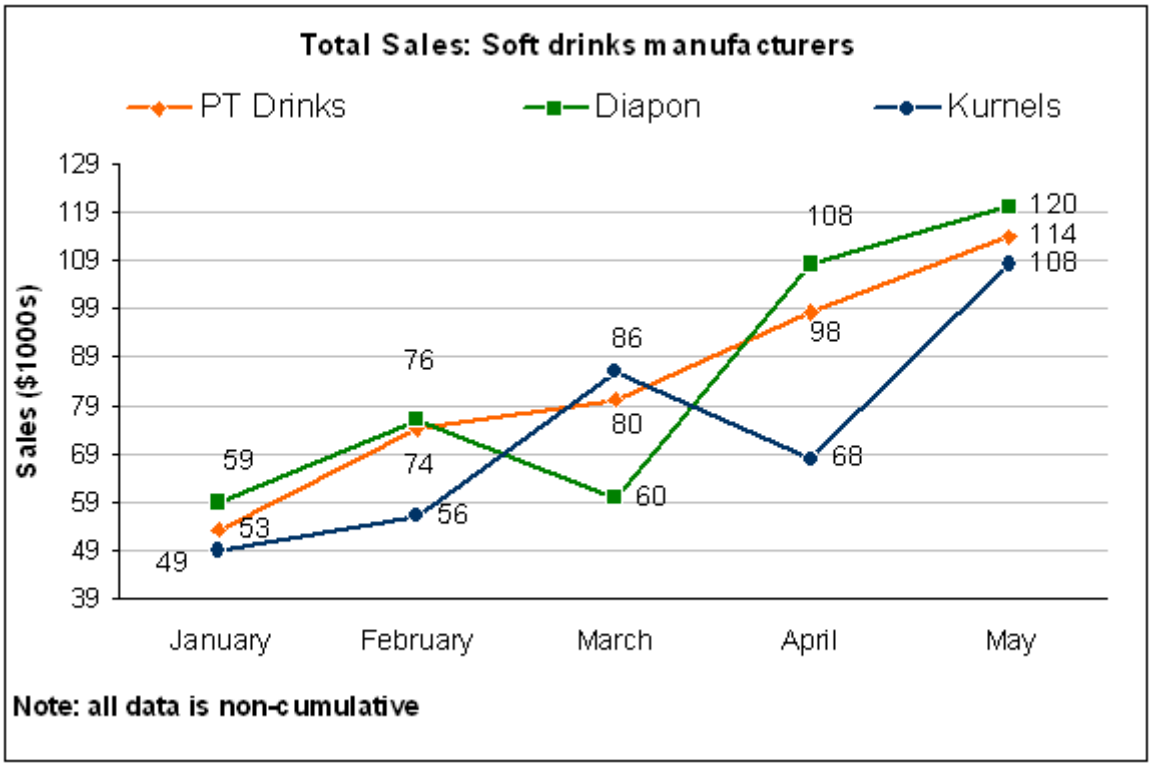
Q5 Which country has the largest absolute difference in the number of people dying compared to the number of people being born?

(A) Belgium
(B) Denmark
(C) Ireland
(D)) Hungary
(E)) Greece

Step 1 *- Calculate the difference in the birth rate and the mortality rate for four countries (ignoring Greece which has a negligible difference between the two figures):*
Belgium = 11.1 – 9.8 = 1.3
Denmark = 12.0 – 10.3 = 1.7
Ireland = 15.2 – 6.9 = 8.3
Hungary = 13.1 – 10.4 = 2.7

Step 2 *- Calculate the absolute difference for each country*
Belgium = 1.3 x 10,400 = 13,520
Denmark = 1.7 x 5,400 = 9,180
Ireland = 8.3 x 4,100 = 34,030
Hungary = 2.7 x 10,100 = 27,270

Thus the correct answer is (C) Ireland

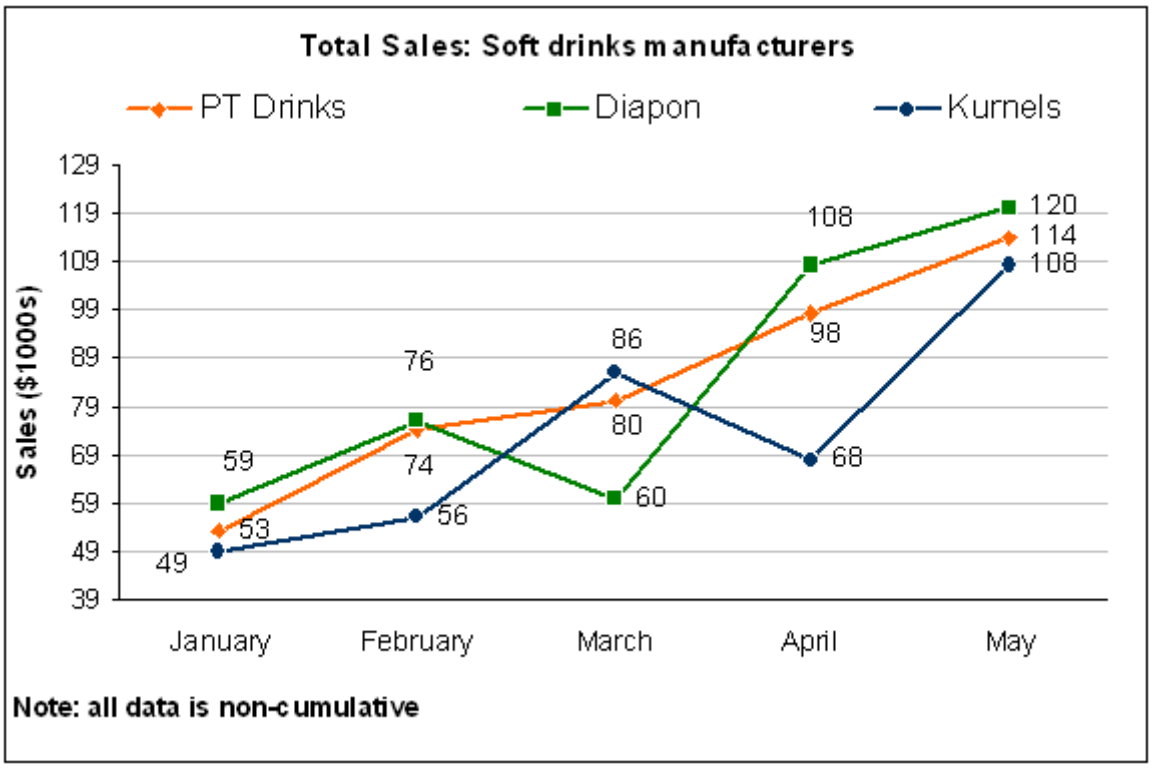


Q6 In which month were PT Drinks sales one-third that of total sales?

(A) January
(B) February
(C) March
(D) April
(E) May

Step 1 *– Calculate for each month the fraction of PT Drinks sales compared to the total sales*
January = 53 / (53 + 59 + 49) = 0.329
February = 74 / (74 + 76 + 56) = 0.359
March = 80 / (80 + 60 + 86) = 0.354
April = 98 / (98 + 108 + 68) = 0.358
May = 114 / (114 + 120 + 108) = 0.333

Thus the correct answer is (E) May



Q7 If Kurnels continued to increase its sales at the same percentage rate as between April and May, what would Kurnels' sales be in August (to the nearest $1,000)?

(A) $272,000
(B) $372,000
(C) $432,000
(D) $2,720,000
(E) $4,320,000

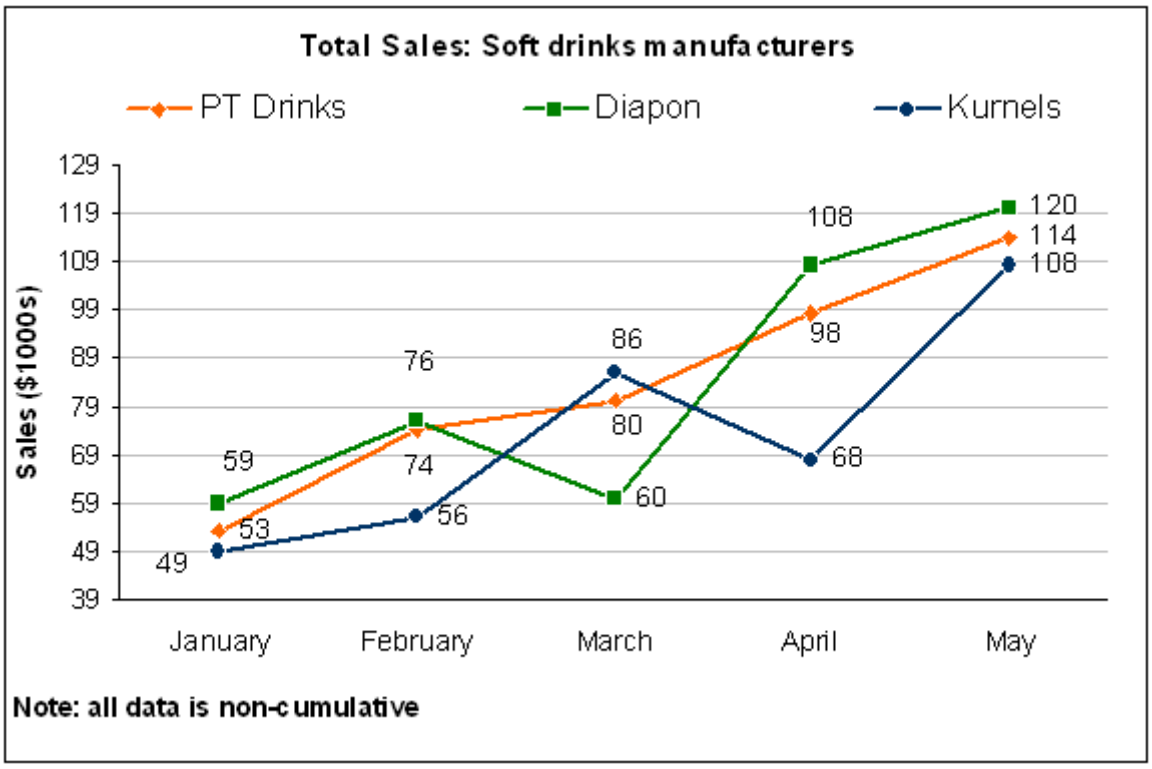
Step 1 *– Calculate the % rate of increase between April – May*

100% x (108 – 68) / 68 = 100% x 40 / 68 = 58.8%
Alternatively, 108 ÷ 68 = 1.588 which is an increase of 58.8%.

Step 2 *– Calculate the future monthly sales figures for Kurnels*

June: 108,000 x 1.588 = 171,504
July: 171,504 x 1.588 = 272,348
August: 272,348 x 1.588 = 432,489
Step 2 – to the nearest $1,000
$432,489 = $432,000

Thus the correct answer is (C) $432,000



Q8 What was the difference between the total sales of Kurnels and those of Diapon between February-May?

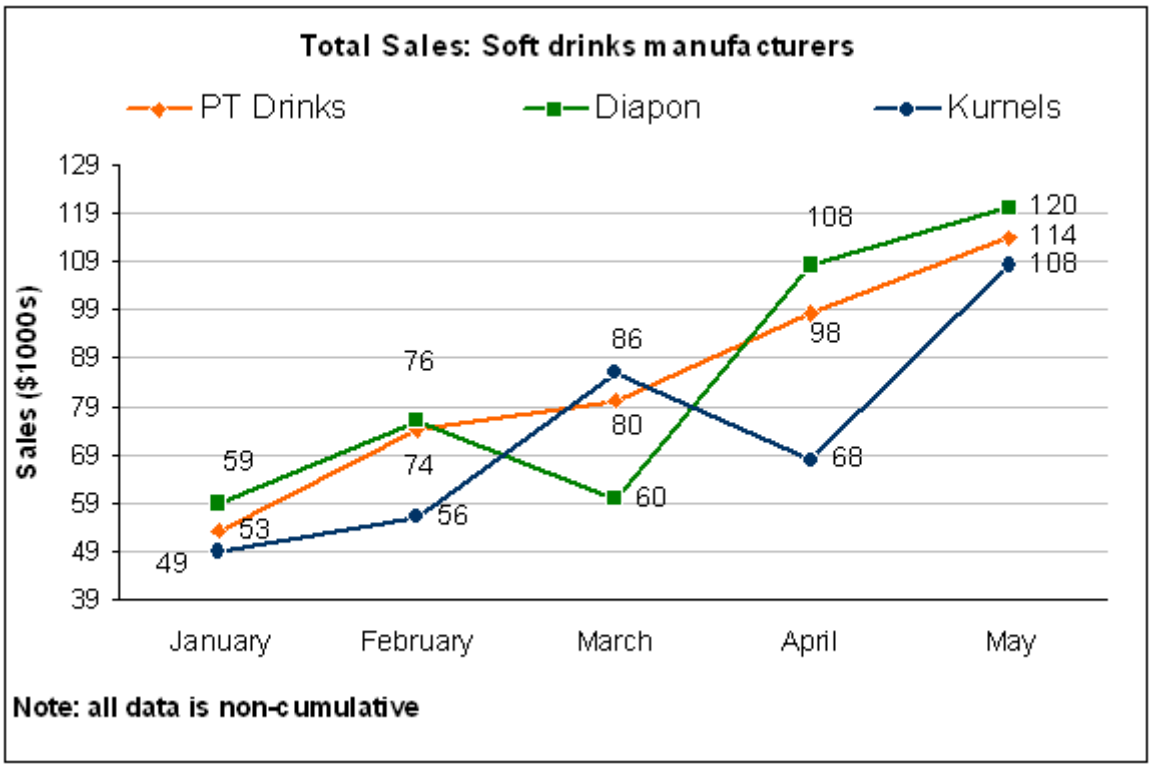
(A) Kurnels smaller by $46,000
(B) Kurnels smaller by $36,000
(C) Kurnels greater by $26,000
(D) Kurnels greater by $36,000
(E) Kurnels greater by $46,000

Step 1 *– Calculate the total sales for Kurnels between February-May*
56 + 86 + 68 + 108 = 318

Step 2 *- Calculate the total sales for Diapon between February-May*
76 + 60 + 108 + 120 = 364

Step 3 *– Calculate the difference between the two totals*
318 – 364 = $46,000 less

Thus the correct answer is (A) Kurnels smaller by $46,000



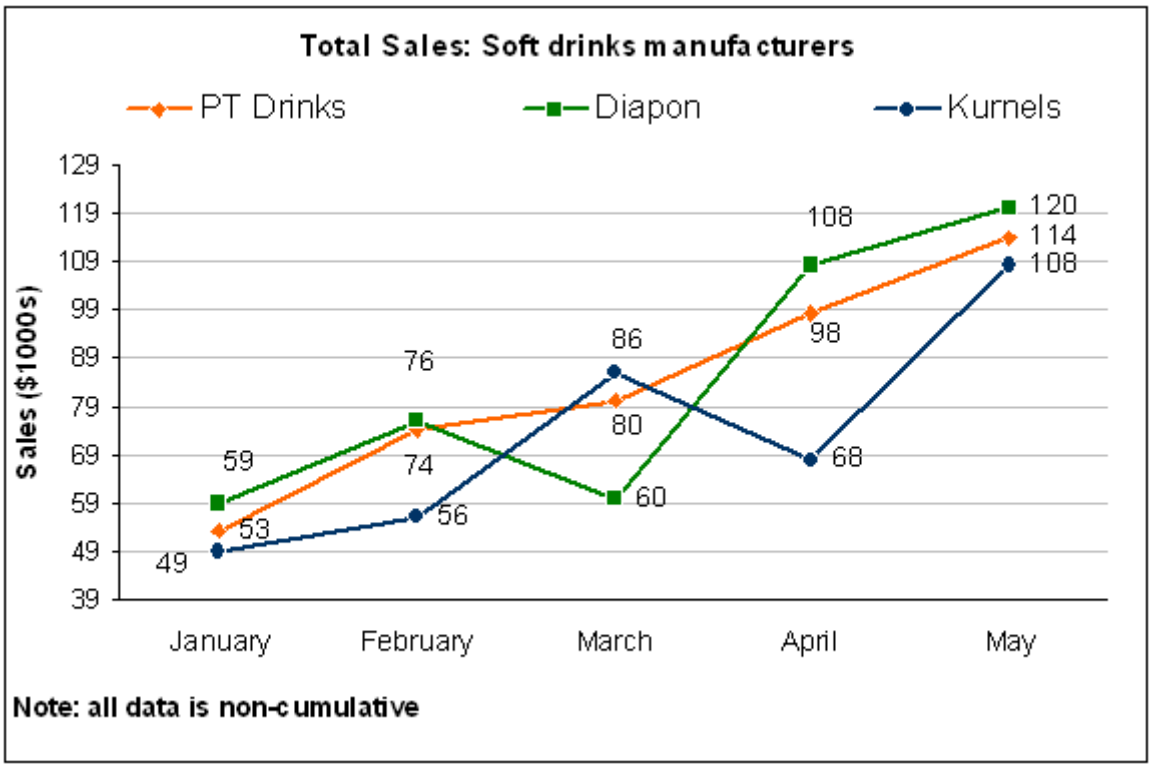
Q9 Between which months did Kurnels show the greatest change in its proportion of total sales?

(A) January - February
(B) February - March
(C) March - April
(D) April - May
(E)) Can't tell from the data

Step 1 *– Calculate Kurnels sales as a proportion of total sales for each month*
January = 49 / (49 + 59 + 53) = 0.304
February = 56 / (74 + 76 + 56) = 0.272
March = 86 / (80 + 60 + 86) = 0.381
April = 68 / (98 + 108 + 68) = 0.248
May = 108 / (108 + 120 + 114) = 0.316

Step 2 *– Calculate the differences between consecutive months*
January – February = 0.032 decrease
February – March = 0.109 increase
March – April = 0.133 decrease
April – May = 0.068 increase

Thus the correct answer is (C) March - April



Q10 If the three soft drinks manufacturers experience the same proportional increases in sales between May-June as between April-May, what will be the combined sales for the three soft drinks manufacturers in June (to the nearest $1,000)?

(A) $133,000
(B) $171,000
(C) $410,000
(D) $437,000
(E) Can't tell from the data

Step 1 *– Calculate the proportional increase for each soft drinks manufacturer between April-May*
Kurnels: 108 ÷ 68 = 1.588 = 58.8% increase
Diapon = 120 ÷ 108 = 1.111 = 11.1% increase
PT Drinks = 114 ÷ 98= 1.163 = 16.3% increase

Step 2 *- Calculate the June sales for each soft drinks manufacturer*
Kurnels = 158.8% x 108 = 171,529
Diapon = 111.1% x 120,000 = 133,333
PT Drinks = 116.3% x 114,000 = 132,612

Step 3 *– Calculate the combined sales for the three soft drinks manufacturers in June*
171,529 + 133,333 + 132,612 = $437,474
To the nearest $1,000 = $437,000

Thus the correct answer is (D) $437,000

Share Price (£)	Yesterday's price	Today's Price	Highest Price (Figures for this month)	Lowest Price (Figures for this month)	Highest Price (Figures this year)	Lowest Price (Figures this year)
LPC Ltd	2.6	2.4	3.14	2.42	3.15	2.3
Hydro Tools	1.62	1.5	1.68	1.42	1.95	1.37
Gyromanic	3.1	3.28	3.99	2.59	4.52	2.51
Flyer Travel	2.27	2.5	3.43	2.1	3.96	2.05
Gel Products	1.9	1.72	2.1	1.6	2.28	1.45

Q11 A trader bought 150,000 shares in Hydro Tools at this month's low and 250,000 shares in Gel Products at this month's high. What is the trader's profit or loss if he sells all the shares at today's prices? (Assume that there are no dealing charges).

(A) £655,000 loss
(B) £120,500 loss
(C) £83,000 loss
(D)) £120,500 profit
(E)) £655,000 profit

Step 1 *– Calculate the cost of purchasing the 150,000 shares in Hydro Tools at this month's low*
150,000 x 1.42 = 213,000

Step 2 *- Calculate the cost of purchasing the 250,000 shares in Gel Products at this month's high*
250,000 x 2.10 = 525,000

Step 3 *– Calculate the sales value of 150,000 shares in Hydro Tools at today's price*
150,000 x 1.50 = 225,000

Step 4 *– Calculate the sales value of 250,000 shares in Gel Products at today's price*
250,000 x 1.72 = 430,000

Step 5 *– Calculate the profit/loss*
225,000 + 430,000 - 213,000 - 525,000 = - £83,000

Thus the correct answer is (C) £83,000 loss

Share Price (£)	Yesterday's price	Today's Price	Highest Price (Figures for this month)	Lowest Price (Figures for this month)	Highest Price (Figures this year)	Lowest Price (Figures this year)
LPC Ltd	2.6	2.4	3.14	2.42	3.15	2.3
Hydro Tools	1.62	1.5	1.68	1.42	1.95	1.37
Gyromanic	3.1	3.28	3.99	2.59	4.52	2.51
Flyer Travel	2.27	2.5	3.43	2.1	3.96	2.05
Gel Products	1.9	1.72	2.1	1.6	2.28	1.45

Q12 Yesterday, which share was the furthest from its yearly low in absolute terms?

(A)) LPC Ltd
(B) Hydro Tools
(C)) Gyromanic
(D) Flyer Travel
(E)) Gel Products

Step 1 *– Calculate the difference between yesterday's share price and the yearly low for each share.*

LPC Ltd: 2.60 – 2.30 = 0.30
Hydro Tools: 1.62 – 1.37 = 0.25
Gyromanic: 3.10 – 2.51 = 0.59
Flyer Travel: 2.27 – 2.05 = 0.22
Gel Products: 1.90 – 1.45 = 0.45

Thus the correct answer is (C) Gyromanic

Share Price (£)	Yesterday's price	Today's Price	Highest Price (Figures for this month)	Lowest Price (Figures for this month)	Highest Price (Figures this year)	Lowest Price (Figures this year)
LPC Ltd	2.6	2.4	3.14	2.42	3.15	2.3
Hydro Tools	1.62	1.5	1.68	1.42	1.95	1.37
Gyromanic	3.1	3.28	3.99	2.59	4.52	2.51
Flyer Travel	2.27	2.5	3.43	2.1	3.96	2.05
Gel Products	1.9	1.72	2.1	1.6	2.28	1.45

Q13 How many shares of LPC Ltd and Flyer Travel Ltd can a trader buy today who spends £2.1 million and splits the value of the shares in the ratio of 2:5 respectively (ignoring any other taxes or charges incurred)?

(A)) 350,000 shares (LPC Ltd), 500,000 shares (Flyer Travel Ltd)
(B)) 300,000 shares (LPC Ltd), 504,000 shares (Flyer Travel Ltd)
(C)) 250,000 shares (LPC Ltd), 600,000 shares (Flyer Travel Ltd)
(D)) 200,000 shares (LPC Ltd), 500,000 shares (Flyer Travel Ltd)
(E)) 150,000 shares (LPC Ltd), 600,000 shares (Flyer Travel Ltd)

Step 1 *– Split the £2.1 million in to the ratio of 2:5*
LPC Ltd: £2.1 million x 2/7 = £0.6 million
Flyer Travel Ltd: £2.1 million x 5/7 = £1.5 million

Step 2 *– Calculate the number of LPC Ltd shares*
£0.6 million / £2.40 = 250,000

Step 3 *– Calculate the number of Flyer Travel Ltd shares*
£1.5 million / £2.50 = 600,000

Thus the correct answer is (C) 250,000 shares (LPC Ltd), 600,000 shares (Flyer Travel Ltd)

Share Price (£)	Yesterday's price	Today's Price	Highest Price (Figures for this month)	Lowest Price (Figures for this month)	Highest Price (Figures this year)	Lowest Price (Figures this year)
LPC Ltd	2.6	2.4	3.14	2.42	3.15	2.3
Hydro Tools	1.62	1.5	1.68	1.42	1.95	1.37
Gyromanic	3.1	3.28	3.99	2.59	4.52	2.51
Flyer Travel	2.27	2.5	3.43	2.1	3.96	2.05
Gel Products	1.9	1.72	2.1	1.6	2.28	1.45

Q14 How much would the loss be from buying 125,000 Gyromanic shares at this month's high, then selling all the shares at this month's low?

(A) £63,750
(B) £175,000
(C) £225,750
(D) £251,250
(E) None of these

Step 1 *– Calculate the cost of purchasing 125,000 Gyromanic shares at this month's high*
125,000 x 3.99 = £498,750

Step 2 *- Calculate the revenue from selling 125,000 Gyromanic shares at this month's low*
125,000 x 2.59 = £323,750

Step 3 *– Calculate the potential loss*
£498,750 - £323,750 = £175,000

Thus the correct answer is (B) £175,000

Share Price (£)	Yesterday's price	Today's Price	Highest Price (Figures for this month)	Lowest Price (Figures for this month)	Highest Price (Figures this year)	Lowest Price (Figures this year)
LPC Ltd	2.6	2.4	3.14	2.42	3.15	2.3
Hydro Tools	1.62	1.5	1.68	1.42	1.95	1.37
Gyromanic	3.1	3.28	3.99	2.59	4.52	2.51
Flyer Travel	2.27	2.5	3.43	2.1	3.96	2.05
Gel Products	1.9	1.72	2.1	1.6	2.28	1.45

Q15 Yesterday, Trader A spent £650,000 purchasing LPC Ltd shares and Trader B spent the same amount on Flyer Travel shares. If Trader A and Trader B each sold their entire shareholding today, how much more profit would Trader B make than Trader A?

(A) £11,692
(B) £115,859
(C) £39,796
(D) £139,796
(E) £65,859

Step 1 *– Calculate the profit (or loss) for Trader A*
LPC Ltd: 2.4 x £650,000 / 2.6 = £600,000 from selling the shares.
Less the 650,000 spent on buying the shares = £50,000 loss

Step 2 *- Calculate the profit (or loss) for Trader B*
Flyer Travel: 2.5 x £650,000 / 2.27 = £715,859 from selling the shares.
Less the 650,000 spent on buying the shares = £65,859 profit

Step 3 *– Calculate the difference*
£65,859 + £50,000 = £115,859

Thus the correct answer is (B) £115,859

Q16 Which competitor, or competitors, are predicted in the Next Quarter to achieve sales of less than its average over Quarters 1-4?

(A) Competitor B
(B)) Competitors B and C
(C)) Competitors A and C
(D)) Competitors C and D
(E) Competitor D

Step 1 *– Calculate the average for each competitor*
Competitor A: 40/4 = 10
Competitor B: 41/4 = 10.25
Competitor C: 53/4 = 13.25
Competitor D: 44/4 = 11
Competitor E: 40/4 = 10

Step 2 *– Which is greater than Next Quarter's predictions?*
Competitors B and C

Thus the correct answer is (B) Competitors B and C

Q17 Assuming that the Next Quarter's projection is accurate, but that in all subsequent Quarters sales drop by 5% each quarter, by how much will Competitor D's sales in Year 2 exceed those of Year 1 (to the nearest $10,000)?

(A) $520,000
(B) $620,000
(C) $720,000
(D) $820,000
(E) $920,000

Step 1 *– Sum Competitor D's sales for Year 1*
11 + 15 + 8 + 10 = $44 million

Step 2 *- Calculate Competitor D's sales for Year 2*
12 + (12 x 0.95) + (12 x 0.95 x 0.95) + (12 x 0.95 x 0.95 x 0.95)
= 12 + 11.4 + 10.83 + 10.29
= $44.52 million

Step 3 *– Calculate the difference*
44.52 – 44 = 0.52 million

Thus the correct answer is (A) $520,000

Q18 Competitor C operates 18 stores compared to Competitor E's 15 stores. How much more sales revenue would Competitor E have needed to make to match Competitor C's average sales per store in Quarter 1?

(A)) $1 million
(B)) $2 million
(C)) $3 million
(D)) $4 million
(E)) $5 million

Step 1 *– Calculate Competitor C's average sales in Quarter 1*
12 / 18 = 0.67

Step 2 *– Calculate what Competitor E's sales would have needed to be in Quarter 1*
0.67 x 15 = 10
Additional sales = $1 million

Thus the correct answer is (A) $1 million

Q19 In the Next Quarter Competitors A and B merge their sales operations, and in response Competitors C and D decide to operate together. Competitors A and B exceed their projected quarterly sales by 2/9ths. Next Quarter's sales for Competitors C and D are in line with their averages over the previous 4 quarters. What is the value of the combined sales of Competitors A-E for the Next Quarter, to the nearest $million ? (Assume that Competitor E's projected sales for the next quarter are correct).

(A)) $11 million
(B)) $16 million
(C)) $26 million
(D)) $61 million
(E)) Can't tell from data

Step 1 *– Calculate the value of Competitor A and B's sales*
21 + (21 x 2/9) = 25.67

Step 2 *- Calculate the average sale for Competitor C*
53 / 4 = 13.25

Step 3 *- Calculate the average sale for Competitor D*
44 / 4 = 11

Step 4 *- Calculate the total sales, including Competitor E*
25.67 + 13.25 + 11 + 11 = $60.92 million

Step 5 *– To the nearest $million = $61 million*

Thus the correct answer is (D) $61 million

Q20 Which competitor has a ratio of 4:5 Quarter 4 : Quarter 3 sales?

(A) Competitor A
(B)) Competitor B
(C)) Competitor C
(D)) Competitor D
(E) Competitor E

Step 1 *– Calculate the ratios for each competitor*

Competitor A: 13 / 9 = 0.62
Competitor B: 12 / 10 = 1.25
Competitor C: 12 / 15 = 0.8 = 4 / 5
Competitor D: 10 / 8 = 1.20
Competitor E: 8 / 13 = 1.44

Thus the correct answer is (C) Competitor C

PRODUCT CODE	BEC 1A	BEC 5C	FLAC 3X	FLAC 9Y	FLAC 4T
Number of units sold	6,500	4,800	3,500	5,500	4,500
Number of units produced	9,000	6,500	5,200	6,800	6,000
PRODUCTION COSTS (£ per 100 units produced)					
Labour cost	180	172	160	150	164
Design cost	84	92	74	101	105
Misc costs	62	74	94	108	94
Sales price - per unit sold (£)	4.25	4.15	4.8	4.65	4.95

All Data Shown is for January

Q21 What was the difference in the value of FLAC product sales compared to BEC product sales?

(A) £14,650
(B) £17,105
(C) £27,545
(D) £47,545
(E) £64,650

Step 1 *– Calculate FLAC product sales*
(3,500 x £4.80) + (5,500 x £4.65) + (4,500 x £4.95)
= £16,800 + £25,575 + £22,275 = £64,650

Step 2 *– Calculate BEC product sales*
(6,500 x £4.25) + (4,800 x £4.15)
= £27,625 + £19,920
= £47,545

Step 3 *– Calculate the difference*
£64,650 - £47,545 = £17,105

Thus the correct answer is (B) £17,105

PRODUCT CODE	BEC 1A	BEC 5C	FLAC 3X	FLAC 9Y	FLAC 4T
Number of units sold	6,500	4,800	3,500	5,500	4,500
Number of units produced	9,000	6,500	5,200	6,800	6,000
PRODUCTION COSTS (£ per 100 units produced)					
Labour cost	180	172	160	150	164
Design cost	84	92	74	101	105
Misc costs	62	74	94	108	94
Sales price - per unit sold (£)	4.25	4.15	4.8	4.65	4.95

All Data Shown is for January

Q22 Which product code has the highest profit margin? (Assume Profit margin = Sales price – Production costs).

(A) BEC 1A
(B) BEC 5C
(C) FLAC 3X
(D) FLAC 9Y
(E) FLAC 4T

Step 1 *– Sum the 3 Production costs for each product code*

BEC 1A: 180 + 84 + 62 = 326
BEC 5C: 172 + 92 + 74 = 338
FLAC 3X: 160 + 74 + 94 = 328
FLAC 9Y: 150 + 101+ 108 = 359
FLAC 4T: 164 + 105 + 94 = 363

Step 2 *– Calculate the profit per unit for each product code*
Profit per unit = Sales value – production cost

BEC 1A: 4.25 – 3.26 = 0.99
BEC 5C: 4.15 – 3.38 = 0.77
FLAC 3X: 4.80 – 3.28 = 1.52
FLAC 9Y: 4.65 – 3.59 = 1.06
FLAC 4T: 4.95 – 3.63 = 1.32

Thus the correct answer is (C) FLAC 3X

PRODUCT CODE	BEC 1A	BEC 5C	FLAC 3X	FLAC 9Y	FLAC 4T
Number of units sold	6,500	4,800	3,500	5,500	4,500
Number of units produced	9,000	6,500	5,200	6,800	6,000
PRODUCTION COSTS (£ per 100 units produced)					
Labour cost	180	172	160	150	164
Design cost	84	92	74	101	105
Misc costs	62	74	94	108	94
Sales price - per unit sold (£)	4.25	4.15	4.8	4.65	4.95

All Data Shown is for January

Q23 What would have been the additional sales revenue on BEC 5C units if all those that had been produced in January were sold?

(A) £27,625
(B) £25,428
(C) £15,655
(D) £11,700
(E) £7,055

Step 1 *– Calculate the difference between number of units produced and sold.*
6,500 – 4,800 = 1,700 units

Step 2 *– Calculate the additional sales revenue for 1,700 units*
1,700 x £4.15 = £7,055

Thus the correct answer is (E) £7,055

Tip*: this is actually quite an easy question. Don't fall into the trap of working out the profit based on (sale price – production costs) because these extra 1,700 have already been produced. It is a sunk cost and therefore any sales are profit.*

PRODUCT CODE	BEC 1A	BEC 5C	FLAC 3X	FLAC 9Y	FLAC 4T
Number of units sold	6,500	4,800	3,500	5,500	4,500
Number of units produced	9,000	6,500	5,200	6,800	6,000
PRODUCTION COSTS (£ per 100 units produced)					
Labour cost	180	172	160	150	164
Design cost	84	92	74	101	105
Misc costs	62	74	94	108	94
Sales price - per unit sold (£)	4.25	4.15	4.8	4.65	4.95

All Data Shown is for January

Q24 If the labour, design and Misc costs for producing the FLAC 9Y decrease by 5%, 7.5% and 12.5% respectively, what will be the profit when selling 25,000 FLAC 9Y units?

(A) £116,250.50
(B) £85,442.00
(C) £48,296.25
(D) £33,642.50
(E) £19,450.50

Step 1 *– Calculate the new costs*
Labour: 95% x 150 = £142.50 per 100 units
Design: 92.5% x 101 = £93.43 per 100 units
Misc costs: 87.5% x 108 = £94.50 per 100 units

Step 2 *– Sum the new costs*
£142.50 + £93.43 + £94.50 = £330.43 per 100 units

Step 3 *– Calculate the sales value*
25,000 x 4.65 = £116,250

Step 4 *– Calculate the profit*
£116,250 – (£330.43 x 25,000 / 100) = £116,250 - £82,607.50 = £33,642.50

Thus the correct answer is (D) £33,642.50

PRODUCT CODE	BEC 1A	BEC 5C	FLAC 3X	FLAC 9Y	FLAC 4T
Number of units sold	6,500	4,800	3,500	5,500	4,500
Number of units produced	9,000	6,500	5,200	6,800	6,000
PRODUCTION COSTS (£ per 100 units produced)					
Labour cost	180	172	160	150	164
Design cost	84	92	74	101	105
Misc costs	62	74	94	108	94
Sales price - per unit sold (£)	4.25	4.15	4.8	4.65	4.95

All Data Shown is for January

Q25 An order valued at £14,350 is placed for FLAC 4T units at a sales price that is £0.85 below the norm. What is the profit on this order?

(A) £1,945
(B) £1,845
(C) £1,645
(D) £1,745
(E) Can't tell from data

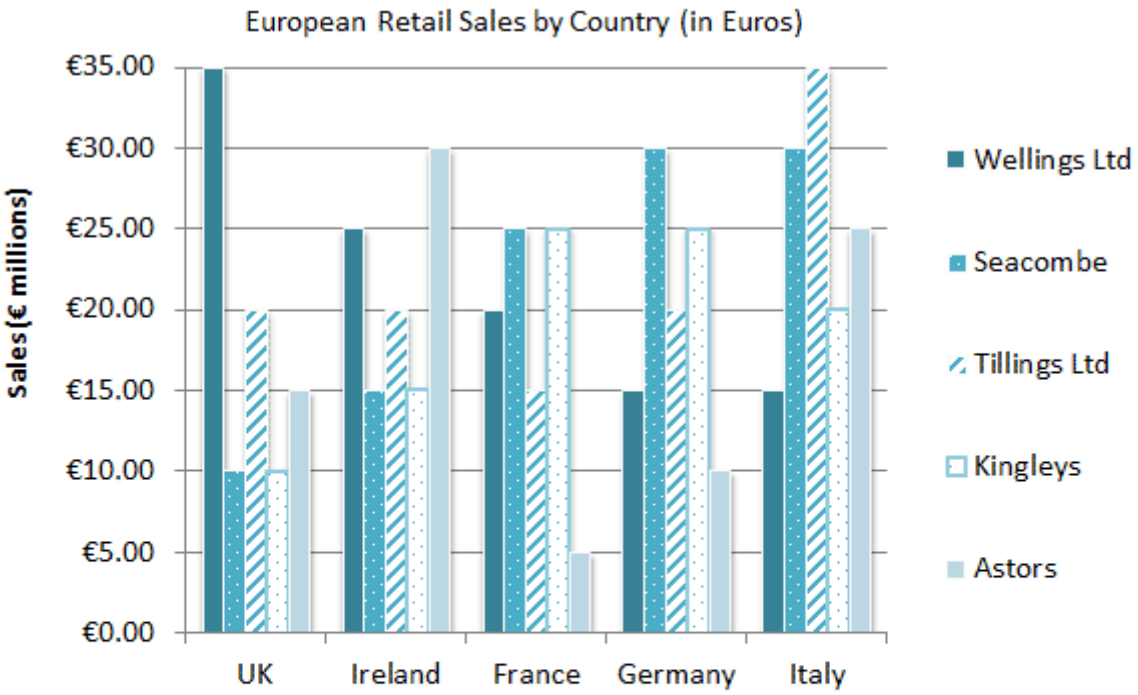
Step 1 *– Calculate the new FLAC 4T sales price*
£4.95 - £0.85 = £4.10

Step 2 *– Calculate the number of units sold*
£14,350 / £4.10 = 3,500

Step 3 *– Calculate the production costs*
3,500 x (164 + 105 + 94)/100 = £12,705

Step 4 *– Calculate the profit*
£14,350 - £12,705 = £1,645

Thus the correct answer is (C) £1,645



Number of Stores by Country	UK	Ireland	France	Germany	Italy
Wellings Ltd	5	4	3	4	3
Seacombe	7	6	6	5	5
Tillings Ltd	6	5	3	6	4
Kingleys	8	8	5	10	6
Astors	12	16	11	12	9

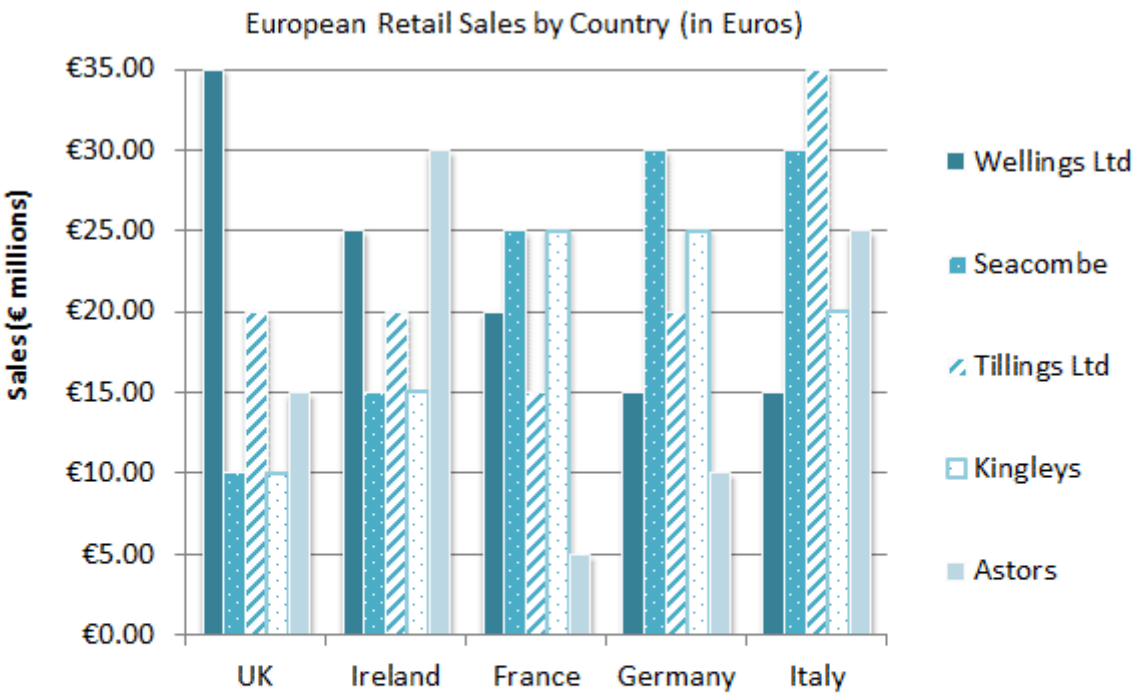
Q26 For the company which achieved the highest sales per number of their stores in France, what was their sales value across the five countries combined?

(A)) €40 million
(B) €85 million
(C)) €110 million
(D)) €140 million
(E) €155 million

Step 1 *– Calculate the average sales per store in France*
Welllings: 20 / 3 = 6.67 ← *Wellings achieved the highest sales per store*
Seacombe: 25 / 6 = 4.18
Tillings Ltd: 15 / 3 = 5
Kingleys: 25 / 5 = 5
Astors: 5 / 11 = 0.45

Step 2 *– Sum the sales for Welllings across all five countries*
35 + 25 + 20 + 15 + 15 = €110 million

Thus the correct answer is (C) €110 million



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Seacombe	7	6	6	5	5
Tillings Ltd	6	5	3	6	4
Kingleys	8	8	5	10	6
Astors	12	16	11	12	9

Q27 The economic recession is predicted to decrease the total retail sales in Germany, Ireland and Italy by 7.2%, 9% and 4.6% respectively. What total sales value is predicted in Germany, Ireland and Italy combined?

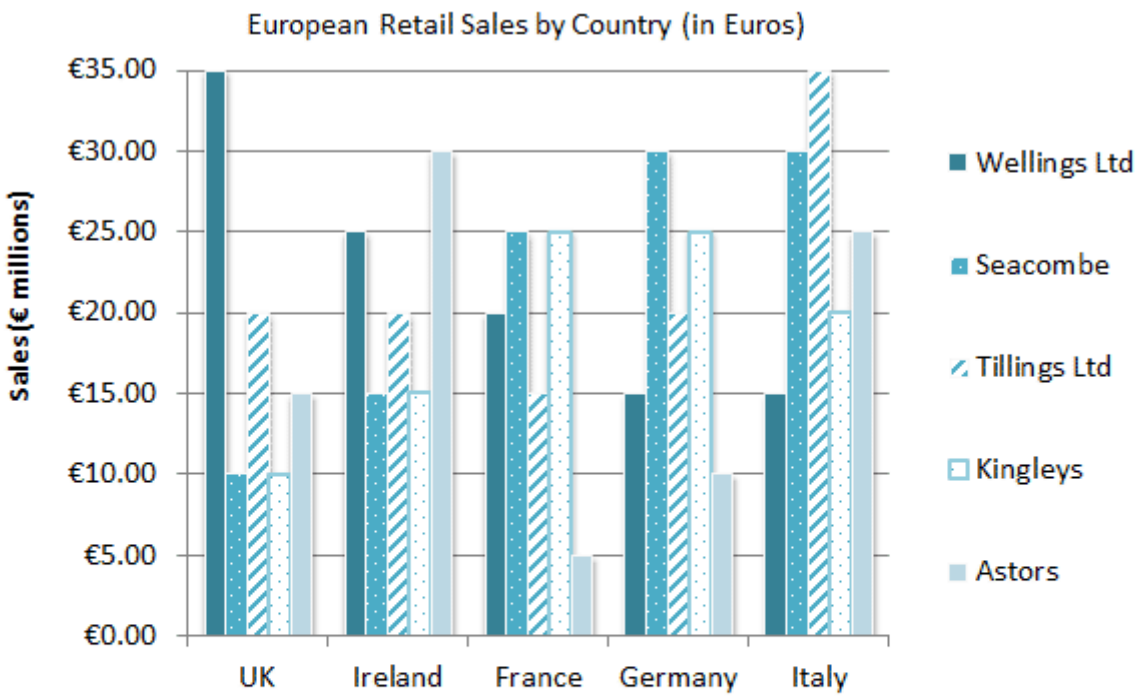
(A)) €302.5 million
(B)) €307.6 million
(C)) €310.4 million
(D)) €322.4 million
(E)) €330.6 million

Step 1 *– Calculate the total sales for the 3 countries*
Germany: 15 + 30 + 20 + 25 + 10 = 100
Ireland: 25 + 15 + 20 + 15 + 30 = 105
Italy: 15 + 30 + 35 + 20 + 25 = 125

Step 2 *– Calculate the decreased sales for each of the 3 countries*
Germany: €100 x 92.8% = 92.8
Ireland: €105 x 91% = 95.55
Italy: €125 x 95.4% = 119.25

Step 3 *– Sum the decreased sales for each of the 3 countries*
92.8 + 95.55 + 119.25 = 307.60

Thus the correct answer is (B) €307.6 million



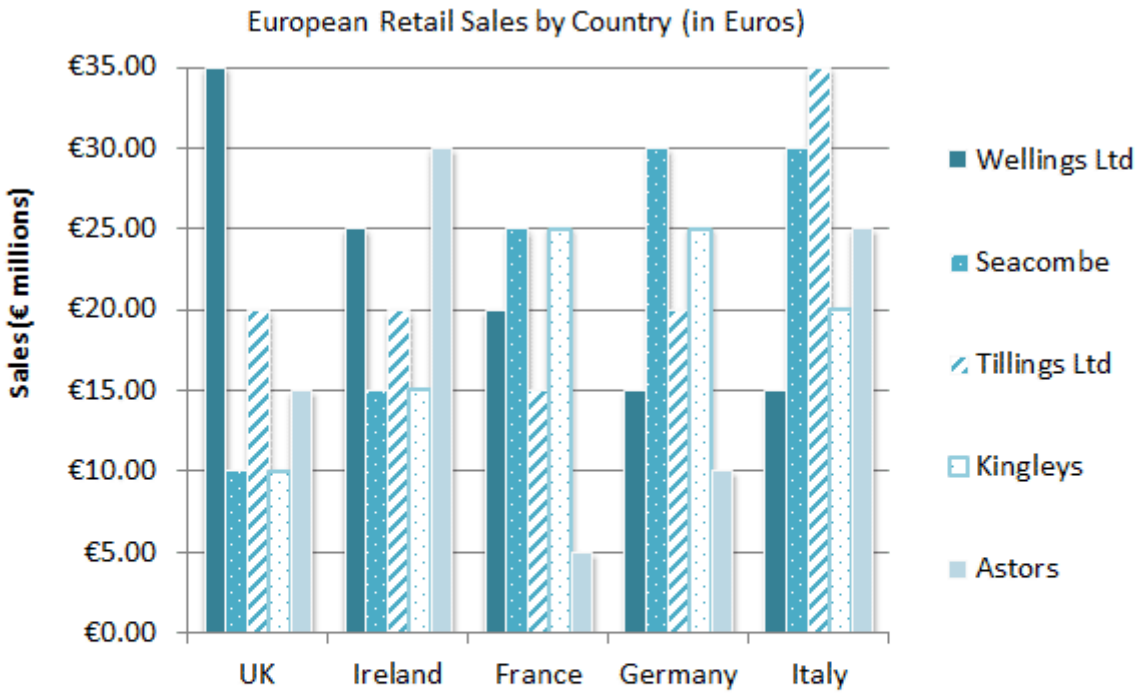
Number of Stores by Country	UK	Ireland	France	Germany	Italy
Wellings Ltd	5	4	3	4	3
Seacombe	7	6	6	5	5
Tillings Ltd	6	5	3	6	4
Kingleys	8	8	5	10	6
Astors	12	16	11	12	9

Q28 Which two countries have the same average sales across the five retail companies?

(A)) UK, Ireland
(B) Ireland, France
(C) Italy, Germany
(D)) Germany, UK
(E) France, UK

Step 1 *– Calculate the total sales per country (this will give you the country with the "highest average sales per country" since each figure will need to be divided by 5)*
UK: 35 + 10 + 20 + 10 + 15 = 90
Ireland: 25 + 15 + 20 + 15 + 30 = 105
France: 20 + 25 + 15 + 25 + 5 = 90
Germany: 15 + 30 + 20 + 25 + 10 = 100
Italy: 15 + 30 + 35 + 20 + 25 = 125

Thus the correct answer is (E) France, UK



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Seacombe	7	6	6	5	5
Tillings Ltd	6	5	3	6	4
Kingleys	8	8	5	10	6
Astors	12	16	11	12	9

Q29 What would be the value of the UK and the French sales in £ (assume an exchange rate of €1.25 to the £)?

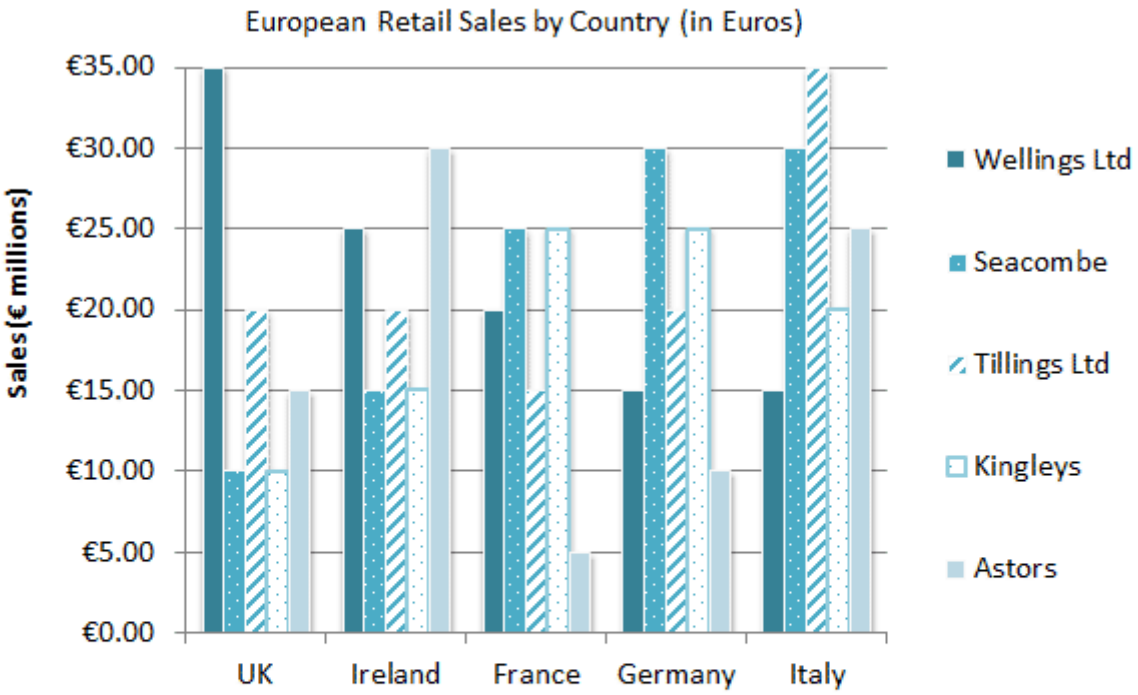
(A)) £144 million
(B)) £112.5 million
(C)) £80 million
(D)) £72 million
(E)) £60 million

Step 1 *– Calculate the UK sales*
35 + 10 + 20 + 10 + 15 = 90

Step 2 *- Calculate the French sales*
20 + 25 + 15 + 25 + 5 = 90

Step 3 *– Convert the total into £*
180 / 1.25 = £144 million

Thus the correct answer is (A) £144 million



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Tillings Ltd	6	5	3	6	4
Kingleys	8	8	5	10	6
Astors	12	16	11	12	9

Q30 Wellings Ltd sells off its Italian stores and then takes over Seacombe's stores except those in Ireland. The merged Wellings Seacombe Ltd sets a target to increase total sales across the European stores by 20% a year for the next three years. What will the total sales be in three years' time (to the nearest million)?

(A)) €33 million
(B)) €190 million
(C)) €290 million
(D)) €328 million
(E) €382 million

Step 1 *– Calculate the total sales for the Wellings Seacombe Ltd operation*
Wellings (UK, Ireland, France, Germany) = 35 + 25 + 20 + 15 = 95
Seacombe (UK, France, Germany, Italy) = 10 + 25 + 30 + 30 = 95
Total sales = €190 million

Step 2 *– Calculate the increase in sales over the next 3 years*
€190 million x 1.2 x 1.2 x 1.2 = £328.32 million

Step 3 *– To the nearest million = £328 million*

Thus the correct answer is (D) £328 million

NUMERICAL REASONING TEST 7

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

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	Exchange Rate (to the £)				
	Week 1	Week 2	Week 3	Week 4	Week 5
Euro €	1.2	1.26	1.3	1.34	1.28
US $	1.64	1.69	1.74	1.84	1.76
Japanese Yen	123.2	128.6	134.8	135	128.4
South African Rand	13.4	13.8	13.2	13.6	14.2

Q1 What was a Japanese Yen worth in Euros in Week 3?

(A) €0.01
(B) €0.05
(C) €0.10
(D) €0.15
(E) €1.00

Step 1 *– Convert from Yen in to £*
1 = 1/134.8 = £0.00742

Step 2 *– Convert from £ in to Euro*
0.00742 x 1.3 = €0.01

Thus the correct answer is (A), €0.01

Q2 How much is 5,000 South African Rand worth in Week 4 in US $?

(A) $199.81
(B) $367.65
(C) $476.65
(D) $599.18
(E) $676.48

Step 1 *– Convert from Rand in to £*
5,000 / 13.6 = 367.65

Step 2 *– Convert from £ in to US $*
367.65 x 1.84 = $676.48

Thus the correct answer is (E), $676.48

	Exchange Rate (to the £)				
	Week 1	Week 2	Week 3	Week 4	Week 5
Euro €	1.2	1.26	1.3	1.34	1.28
US $	1.64	1.69	1.74	1.84	1.76
Japanese Yen	123.2	128.6	134.8	135	128.4
South African Rand	13.4	13.8	13.2	13.6	14.2

Q3 In Week two 10,000 Japanese Yen is converted into £. In Week 5 this is converted into what value in Euros?

(A) €110.00
(B) €104.82
(C) €99.53
(D) €77.76
(E) €60.75

Step 1 *– Convert into £ (using Week 2 figures)*
10,000 / 128.6 = £77.76

Step 2 *– Convert into Euros (using Week 5 figures)*
£77.76 x 1.28 = €99.53

Thus the correct answer is (C), €99.53

	Exchange Rate (to the £)				
	Week 1	Week 2	Week 3	Week 4	Week 5
Euro €	1.2	1.26	1.3	1.34	1.28
US $	1.64	1.69	1.74	1.84	1.76
Japanese Yen	123.2	128.6	134.8	135	128.4
South African Rand	13.4	13.8	13.2	13.6	14.2

Q4 During Week 1 a traveller splits £2,100 equally into US $, Japanese Yen and South African Rand. How many £ does the traveller have on Week 3 if all the currencies are converted back into £ and he is charged a 5% fee for each transaction from one currency into another (to the nearest £100)?

(A) £1,700
(B) £1,800
(C) £1,900
(D) £2,000
(E) £2,100

Step 1 *- splits £2,100 equally into US $, Japanese Yen and South African Rand*
£2,100 / 3 = £700

Step 2 *– Calculate the amount of US $, Japanese Yen and South African Rand (Week 1)*
US $: £700 x 1.64 = $1,148
Japanese Yen: £700 x 123.2 = 86,240 Yen
South African Rand: £700 x 13.4 = 9,380 Rand

Step 3 *– Deduct a 5% charge for each currency*
$1,148 x .95 = $1,090.6
86,240 Yen x .95 = 81,928 Yen
9,380 Rand x .95 = 8,911 Rand

Step 4 *– Convert back into £ (Week 3)*
$1,090.6 / 1.74 = £626.78
81928 Yen / 134.8 = £607.77
8911 Rand / 13.2 = £675.08
Total = £1,909.626.
Deduct a second 5% for the transaction fee. £1,909.63 x 0.95 = £1,814 = £1,800 (to the nearest £100)

Thus the correct answer is (B), £1,800

	Exchange Rate (to the £)				
	Week 1	Week 2	Week 3	Week 4	Week 5
Euro €	1.2	1.26	1.3	1.34	1.28
US $	1.64	1.69	1.74	1.84	1.76
Japanese Yen	123.2	128.6	134.8	135	128.4
South African Rand	13.4	13.8	13.2	13.6	14.2

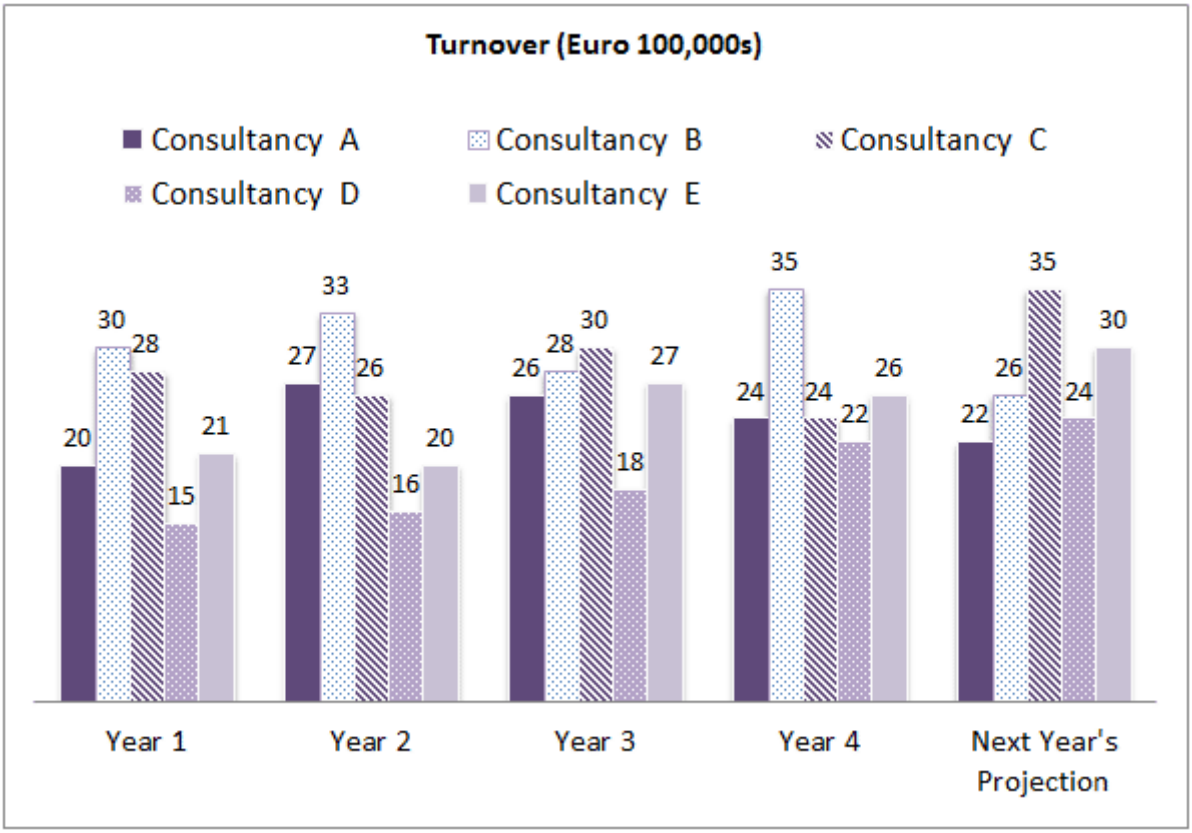
Q5 Which currency has shown the greatest proportionate change in value between Weeks 1 and 4?

(A) Euro
(B) US $
(C)) Japanese Yen
(D) South African Rand
(E)) Can't tell from data

Step 1 *– Calculate the % change in value for each currency between Weeks 1 and 4*

Euro: (1.34 – 1.20) / 1.20 = 0.117. Note: some people find it quicker to calculate 1.34 / 1.2 but both methods produce the percentage.
US $: (1.84 – 1.64) / 1.64 = 0.122
Japanese Yen: (135.0 – 123.2) / 123.2 = 0.096
South African Rand: (13.6 – 13.4) / 13.4 = 0.015

Thus the correct answer is (B), US $



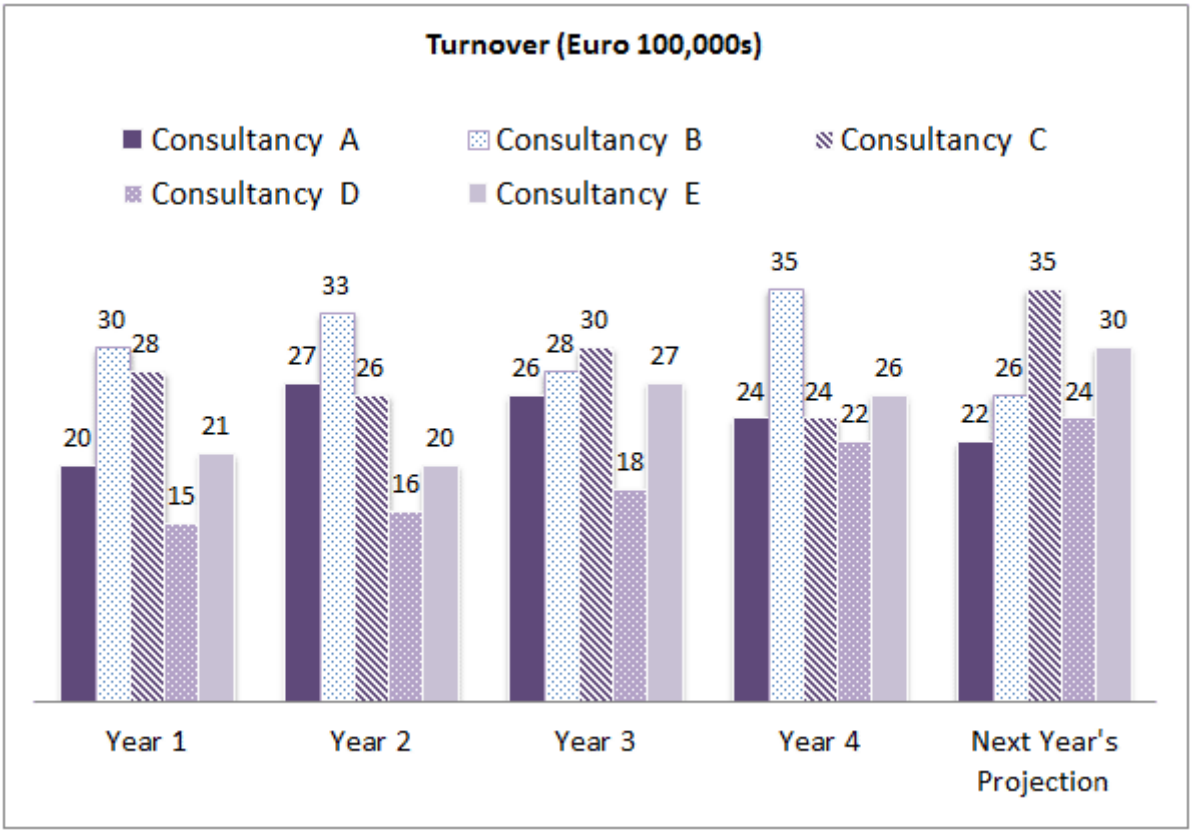
Q6 Next Year's turnover projection for Consultancies A-E combined represents what proportional change on Year 4's turnover for Consultancies A-E?

(A) 3.6%
(B) 4.2%
(C) 4.6%
(D) 5.2%
(E) 5.6%

Step 1 *– Calculate Year 4's total*

24 + 35 + 24 + 22 + 26 = 131
Step 2 – Calculate Next Year's Projected total turnover
22 + 26 + 35 + 24 + 30 = 137
Step 3 – Calculate the % increase
6 / 131 = 4.6%

So the correct answer is (C) 4.6%



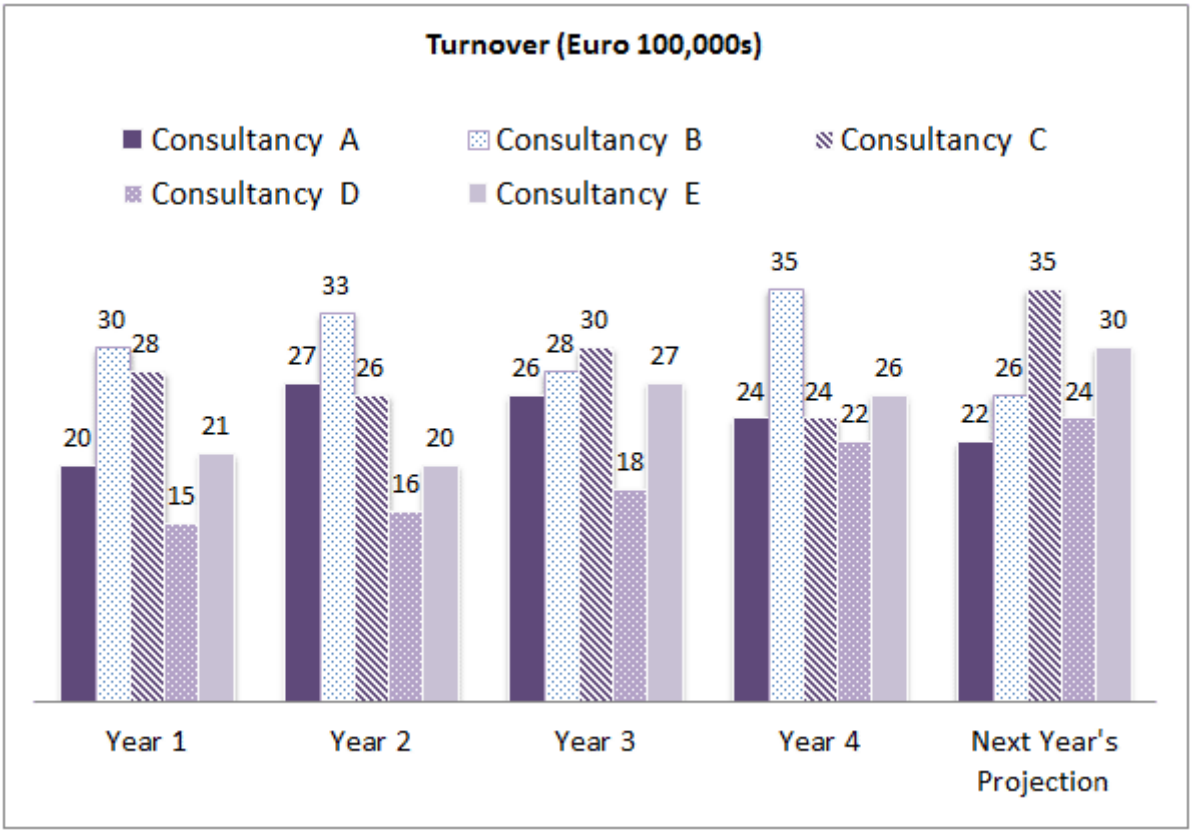
Q7 If, in Year 3, Consultancies A to E represent 60% of the marketplace by value of sales, what is the value of the marketplace excluding Consultancies A-E?

(A) €8.5 million
(B) €8.6 million
(C)) €8.7 million
(D)) €8.8 million
(E)) Can't tell from the data

Step 1 *– Calculate the total sales for Consultancies A to E in Year 3*
26 + 28 + 30 + 18 + 27 = 129

Step 2 *– Calculate the part of the market that excludes Consultancies A-E*
We are told that 129 = 60%
So 100% = 129/60 x 100 = 215
Now 215 – (26 + 28 + 30 + 18 + 27) = €86 (100,000s) = €8.6 million

Thus the correct answer is (B), €8.6 million

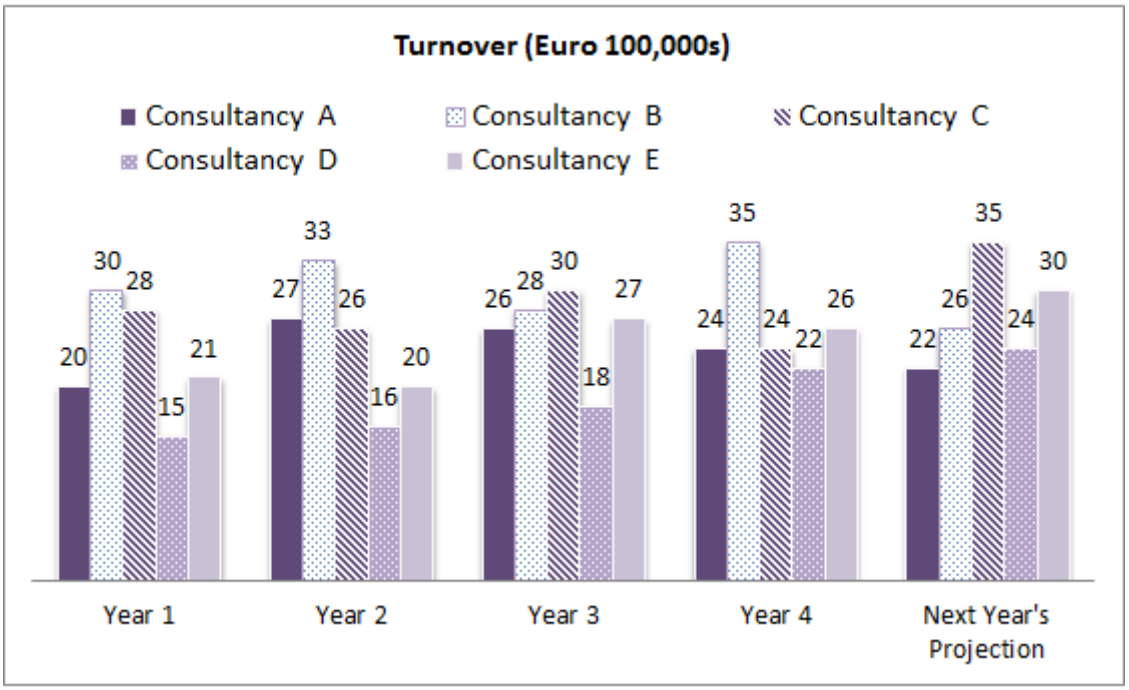


Q8 The turnover target for Consultancy B over the 5 year period shown is €16.5 million. By how much does turnover need to exceed Next Year's Projected turnover in order for the target to be met?

(A)) €1.0 million
(B)) €1.1 million
(C)) €1.2 million
(D)) €1.3 million
(E)) None of these

Step 1 *- Calculate the total Consultancy B turnover over the 5 year period*
30 + 33 + 28 + 35 + 26 = 152
Step 2 – Calculate the total discrepancy with the target figure
€16.5 million - €15.2 million = €1.3 million

So the correct answer is (D), €1.3 million



Q9 Next year, which company is projecting the smallest percentage change in its turnover?

(A)) Consultancy A
(B)) Consultancy B
(C)) Consultancy C
(D)) Consultancy D
(E)) Consultancy E

Step 1 *– Calculate the % change in turnover projected for each company*
Consultancy A: 2 / 24 x 100% = 8.3%
Consultancy B: 9 / 35 x 100% = 25.7%
Consultancy C: 11 / 24 x 100% = 45.8%
Consultancy D: 2 / 22 x 100% = 9%
Consultancy E: 4 / 26 x 100% = 15.4%

Tip: *just by inspecting the data you could probably see that the answer is going to be either Consultancy A or D, so you could save time by calculating just these.*

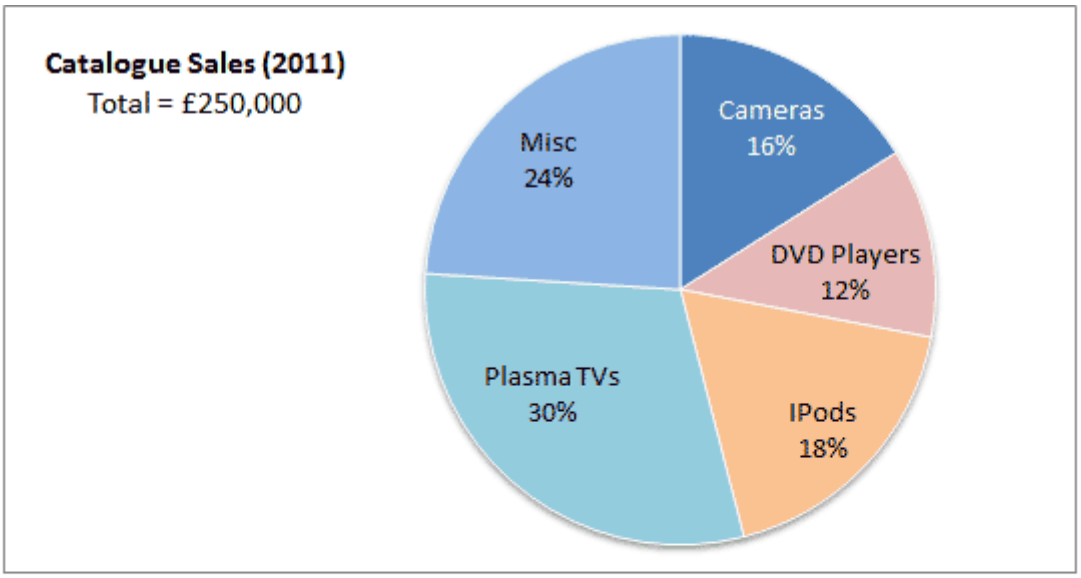
Thus the correct answer is (A), Consultancy A

Q10 What is the ratio of Year 3's Consultancy C's turnover to Consultancy E's turnover?

(A) 2 : 5
(B) 4 : 7
(C) 5 : 7
(D) 10 : 9
(E) 5 : 2

Consultancy C : Consultancy E
= 30 : 27 = 10 : 9

Thus the correct answer is (D), 10 : 9



	Online Sales (2011)	High Street Sales (2011)
Cameras	£553,000	£336,000
DVD Players	£808,000	£483,000
IPods	£852,000	£644,000
Plasma TVs	£325,000	£456,000
Misc	£575,000	£678,000
Total	£3,113,000	£2,597,000

Q11 What % of total plasma TV sales are made online?

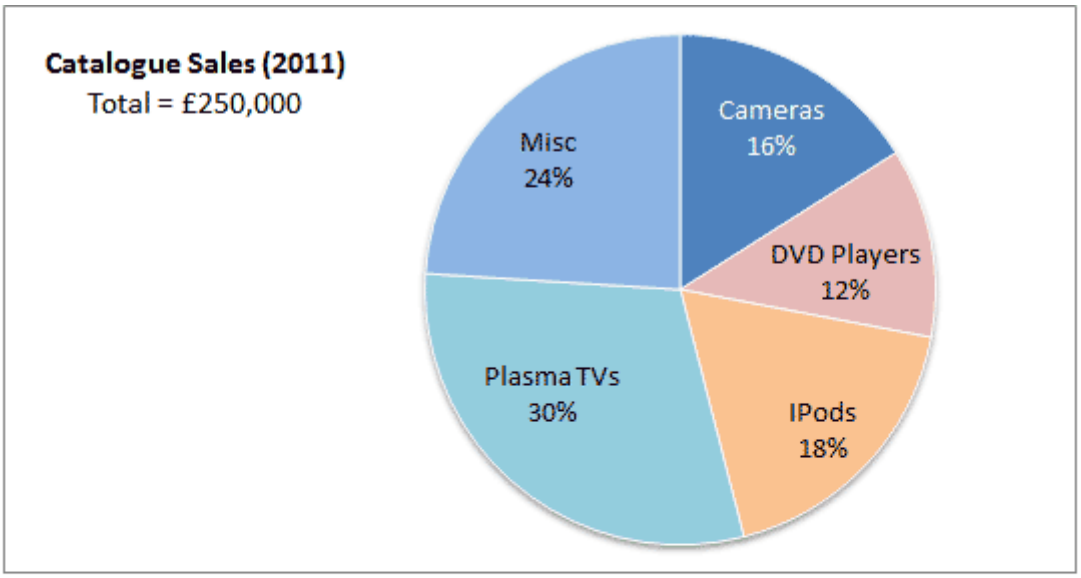
(A) 25%
(B) 28%
(C) 30%
(D) 38%
(E) 42%

Step 1 *– Calculate the total sales for plasma TVs using both the table and the graph.*
£325,000 + £456,000 + (£250,000 x 30%) = £856,000

Step 2 *– Calculate the % of sales that are made online*
£325,000 / £856,000 = 38%

Thus the correct answer is (D), 38%

Note: *42% is deliberately used as a distractor because some people will miss the graph and calculate 325,000 ÷ (325,000 + 456,000)*



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Misc	£575,000	£678,000
Total	£3,113,000	£2,597,000

Q12 What is the difference in value between total sales for IPods compared to cameras?

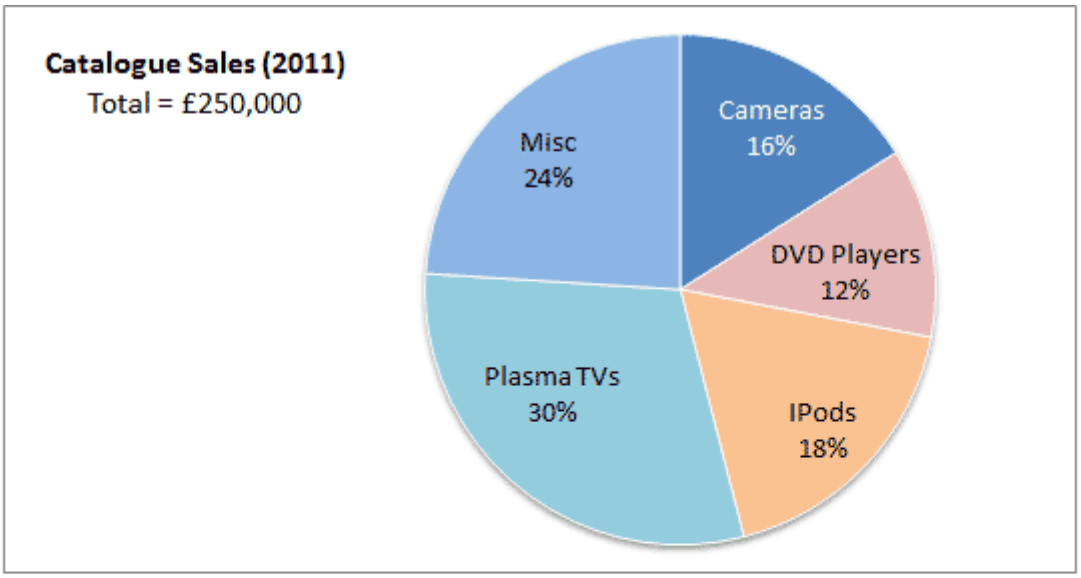
(A) £912,000
(B) £812,000
(C) £712,000
(D) £612,000
(E) £512,000

Step 1 *– Calculate the total sales for IPods*
£852,000 + £644,000 + (18% x £250,000) = £1,541,000

Step 2 *– Calculate the total sales for cameras*
£336,000 + £553,000 + (16% x £250,000) = £929,000

Step 3 *– Calculate the difference*
£1,541,000 - £929,000 = £612,000

Thus the correct answer is (D), £612,000



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Plasma TVs	£325,000	£456,000
Misc	£575,000	£678,000
Total	£3,113,000	£2,597,000

Q13 If the High Street and Catalogue sales of DVD Players had been made online, what % of total Online sales would DVD Players represent?

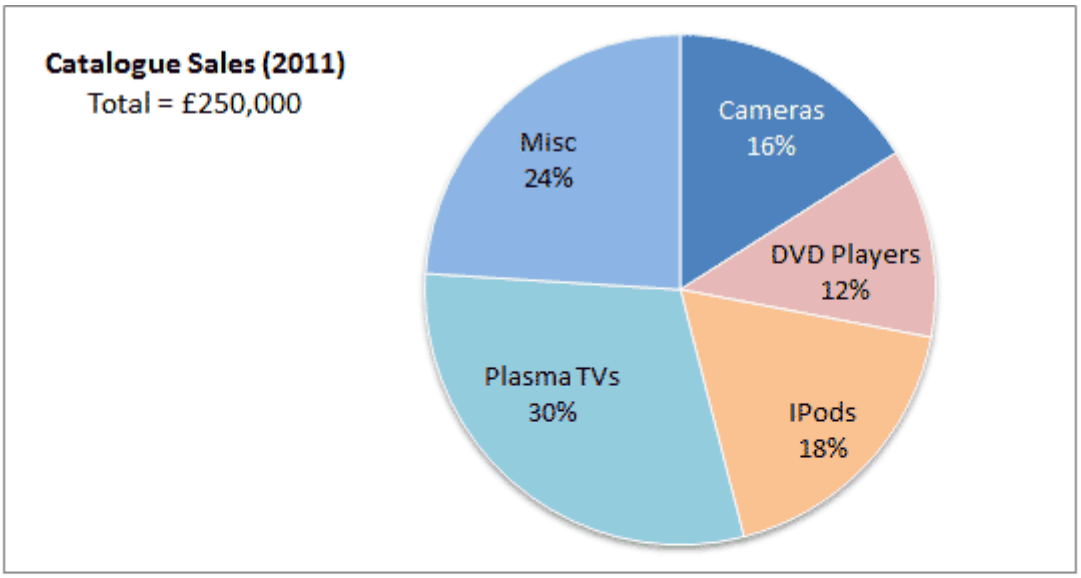
(A) 28%
(B) 30%
(C) 32%
(D) 34%
(E) 36%

Step 1 *– Calculate the value of catalogue sales of DVDs*
£250,000 x 12% = £30,000

Step 2 *– Sum the High Street and catalogue sales of DVD players*
£30,000 + £483,000 = £513,000

Step 3 *– Calculate the % of DVD player sales that are online*
£808,000 + £513,000 / (£852,000 + £808,000 + £513,000 + £553,000 + £325,000 + £575,000)
= £1,321,000 / £3,626,000

Thus the correct answer is (E), 36%



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Misc	£575,000	£678,000
Total	£3,113,000	£2,597,000

Q14 In 2012 total Catalogue sales are forecast to increase by 1/4, total Online sales to increase by a 1/5th, and High Street sales to decrease by 12%. What will be the 2012 sales for Catalogue, Online and High Street combined (to the nearest £1,000)?

(A) £5,597,000
(B) £6,285,000
(C) £6,333,000
(D) £6,433,000
(E) £6,613,000

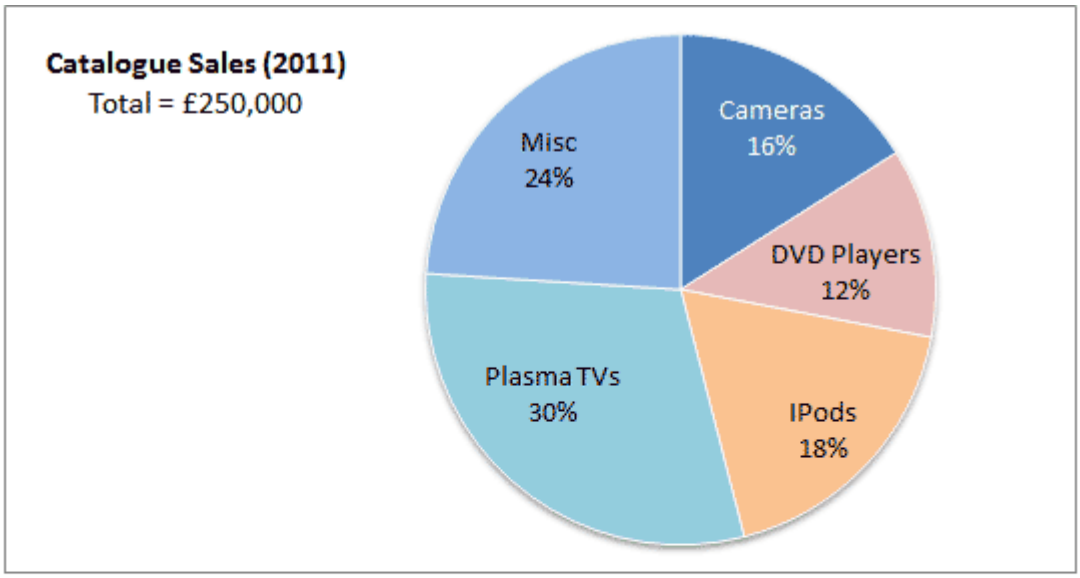
Step 1 *– Calculate the total 2011 sales (Online and for the High Street)*
Online: £852,000 + £808,000 + £553,000 + £325,000 + £575,000 = £3,113,000
High Street: £644,000 + £483,000 + £336,000 + £456,000 + £678,000 = £2,597,000

Step 2 *– Calculate the total 2012 sales (Online and for the High Street)*
Online: £3,113,000 x 1.2 = £3,735,600
High Street: £2,597,000 x 88% = £2,285,360

Step 3 *– Calculate the total 2012 sales (Catalogue)*
£250,000 x 1.25 = £312,500

Step 4 *– Sum the total January sales (Online, Catalogue and High Street)*
£3,735,600 + £2,285,360 + £312,500 = £6,333,460
= £6,333,000 (to the nearest £1,000)

Thus the correct answer is (C), £6,333,000



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Misc	£575,000	£678,000
Total	£3,113,000	£2,597,000

Q15 The profit made from selling cameras online compared to the High Street is in the ratio 9:7, and 15% of online camera sales is profit. What is the 2011 profit for High Street camera sales?

(A) £36,291
(B) £64,517
(C) £66,980
(D) £72,428
(E) £82,950

Step 1 *– Calculate the profit for online camera sales*
15% x £553,000 = £82,950

Step 2 *– Calculate the profit for High Street camera sales*
£82,950 x 7 / 9 = £64,517

Thus the correct answer is (B), £64,517

Tip*: don't fall for the trap of answering A) £36,291. The wording of the question is important. If the question had said something like "the sales were split between High Street and Online in the ratio 9:7" then you would be correct to multiply £82,950 by 7/(9+7). But the ratio is given as one number in relation to another, so it is simply a case of multiplying by 7/9.*

Expenses by Department (£)	Number of staff	Quarter				Annual Expense Budget
		1	2	3	4	
HR	3	1,053	1,680	1,305	1,346	6,500
Marketing	6	4,790	3,706	3,652	4,309	16,000
Sales	12	6,825	6,021	5,091	5,245	22,500
IT	5	1,160	1,042	938	956	4,500
Finance	7	4,257	4,830	4,545	4,463	20,000
R&D	4	1,169	1,009	1,755	1,821	6,000

Q16 Which Department has the highest expense budget per member of staff?

(A) HR
(B) Marketing
(C) Sales
(D) IT
(E) Finance

Step 1 *– Have a quick look at the data to see if this can be seen by inspection. In this case, it is unlikely you can 'see' the answer before doing some number-crunching. Calculate the expense budget per member of staff for each department.*

6,500 / 3 = £2,167
16,000 / 6 = £2,667
22,500 / 12 = £1,875
4,500 / 5 = £900
20,000 / 7 = £2,857

Thus the correct answer is (E), Finance

Expenses by Department (£)	Number of staff	Quarter				Annual Expense Budget
		1	2	3	4	
HR	3	1,053	1,680	1,305	1,346	6,500
Marketing	6	4,790	3,706	3,652	4,309	16,000
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Finance	7	4,257	4,830	4,545	4,463	20,000
R&D	4	1,169	1,009	1,755	1,821	6,000

Q17 If the annual expense budget was evenly allocated for each Quarter, which Department is under budget by the highest amount in Quarter 4?

(A) HR
(B) Marketing
(C) Sales
(D) Finance
(E) R&D

Step 1 *– Calculate the quarterly expense budgets for each Department (excluding IT which is not shown in the answer options)*
HR: 6,500 / 4 = 1,625
Marketing: 16,000 / 4 = 4,000
Sales: 22,500 / 4 = 5,625
Finance: 20,000 / 4 = 5,000
R&D: 6,000 / 4 = 1,500

Step 2 *– Compare to the Quarter 4 figures for each Dept.*
HR: 1,625 – 1,346 = £279
Marketing is over budget
Sales: 5,625 – 5,245 = £380
Finance: 5,000 – 4,463 = £537
R&D is over budget

Thus the correct answer is (D), Finance

Expenses by Department (£)	Number of staff	Quarter				Annual Expense Budget
		1	2	3	4	
HR	3	1,053	1,680	1,305	1,346	6,500
Marketing	6	4,790	3,706	3,652	4,309	16,000
Sales	12	6,825	6,021	5,091	5,245	22,500
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Finance	7	4,257	4,830	4,545	4,463	20,000
R&D	4	1,169	1,009	1,755	1,821	6,000

Q18 60% of the Sales Department's budgets for Quarters 1 and 4 was for attending a Sales Conference. The remainder of the budget was split equally between accommodation and travel costs. What were the Sales Department's travel costs for Quarters 1 and 4 combined?

(A) £2,414
(B) £2,500
(C) £3,500
(D) £4,828
(E) Can't tell from the data

Step 1 *– Although the annual expense budget is provided, we are not told what the quarterly expense budget is. The table provides data for the annual expense budget and the quarterly expenses, without any mention of what the quarterly expense budget may be, since it cannot be assumed that the annual budget is spread equally over each quarter. Therefore we cannot accurately ascertain 60% of the quarterly budget based on the data provided.*

Thus the correct answer is (E), Can't tell from the data

Q19 The Finance Department has receipts for £14,476 of its annual expenses.

What percentage of the Finance Department's annual expenses do not have receipts?

(A) 5%
(B) 10%
(C) 15%
(D) 20%
(E) 25%

Step 1 *– Total the Finance Department's expenses for all 4 quarters*
4,257 + 4,830 + 4,545 + 4,463 = 18,095

Step 2 *– Calculate the % for which there are receipts*
14,476 / 18,095 = 80%
Step 3 - Calculate the % for which there are no receipts
100 – 20 = 20%

Thus the correct answer is (D), 20%

Expenses by Department (£)	Number of staff	Quarter				Annual Expense Budget
		1	2	3	4	
HR	3	1,053	1,680	1,305	1,346	6,500
Marketing	6	4,790	3,706	3,652	4,309	16,000
Sales	12	6,825	6,021	5,091	5,245	22,500
IT	5	1,160	1,042	938	956	4,500
Finance	7	4,257	4,830	4,545	4,463	20,000
R&D	4	1,169	1,009	1,755	1,821	6,000

Q20 If the percentage changes in expenses that each Department exhibited between Quarters 3-4 continued into the first quarter of the next year, what would be that quarter's total expenses (to the nearest £100)?

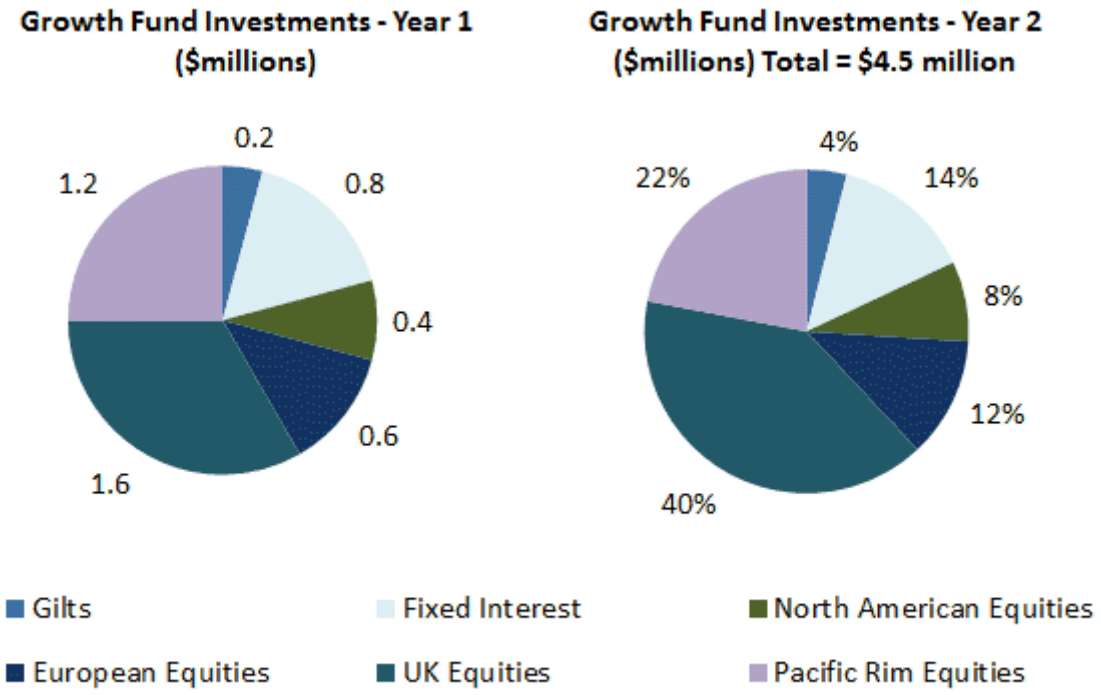
(A) £17,100
(B) £19,100
(C) £19,600
(D) £20,600
(E) None of these

Step 1 *– Calculate the % change by Department between Quarters 3-4*
HR: (1,346 – 1,305) / 1,305 = 3.14%. Note: some people find it quicker to calculate 1,346 ÷ 1,305 = 1.0314
Marketing: (4,309 – 3,652) / 4,309 = 17.99%
Sales: (5,245 – 5,091) / 5,245 = 3.02%
IT: (956 – 938) / 956 = 1.92%
Finance: (4,463 – 4,545) / 4,463 = - 1.80%
R&D: (1,821 – 1,755) / 1,821 = 3.76%

Step 2 *– Calculate the next quarter's expenses for each department*
HR: 103.14% x 1,346 = 1,388
Marketing: 4,309 x 117.99% = 5,084
Sales: 5,245 x 103.02% = 5,403.7
IT: 956 x 101.92% = 974
Finance: 4,463 x 98.2% = 4,383
R&D: 1,821 x 103.76% = 1,889

Step 3 *- Calculate the next quarter's total expenses*
1,388 + 5,084 + 5,404 + 974 + 4,383 + 1,889 = £19,122

Thus the correct answer is (B), £19,100



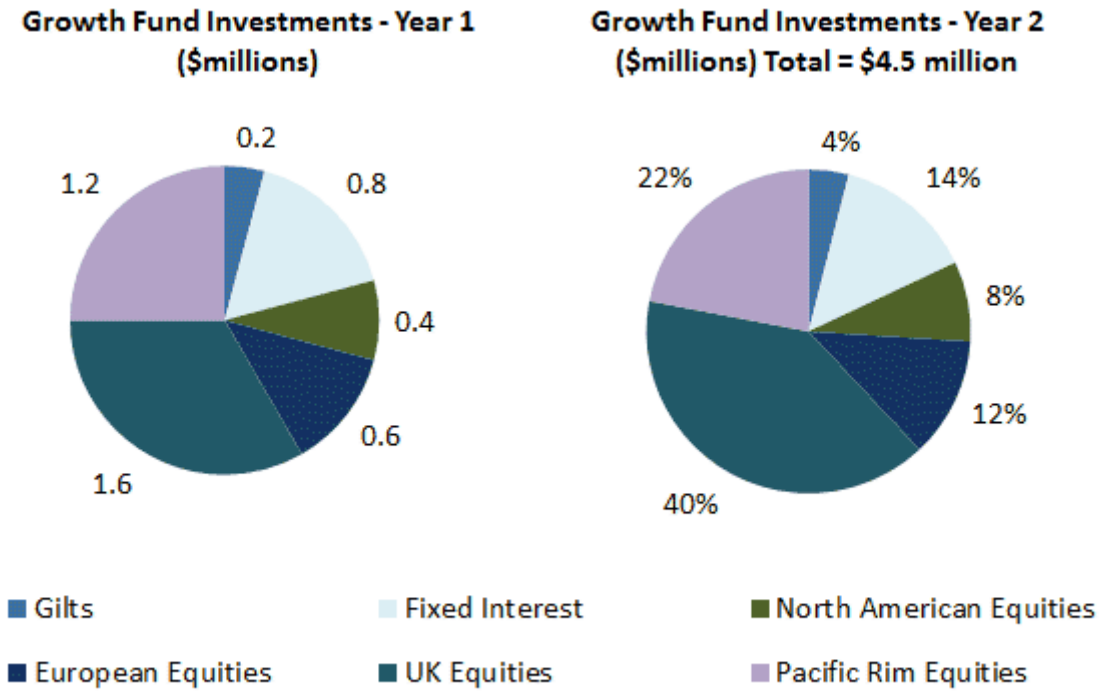
Q21 What was Year 2's decrease in the amount invested in North American and European Equities compared to Year 1?

(A) $10,000
(B) $100,000
(C) $110,000
(D) $111,000
(E) $111,100

Step 1 *– Calculate Year 2's investments in North American and European Equities*
North American: $4.5million x 8% = $360,000
European: $4.5million x 12% = $540,000

Step 2 *- Calculate Year 2's decrease compared to Year 1*
North American change + European change
= ($400,000 - $360,000) + ($600,000 - $540,000)
= $100,000

Thus the correct answer is (B), $100,000



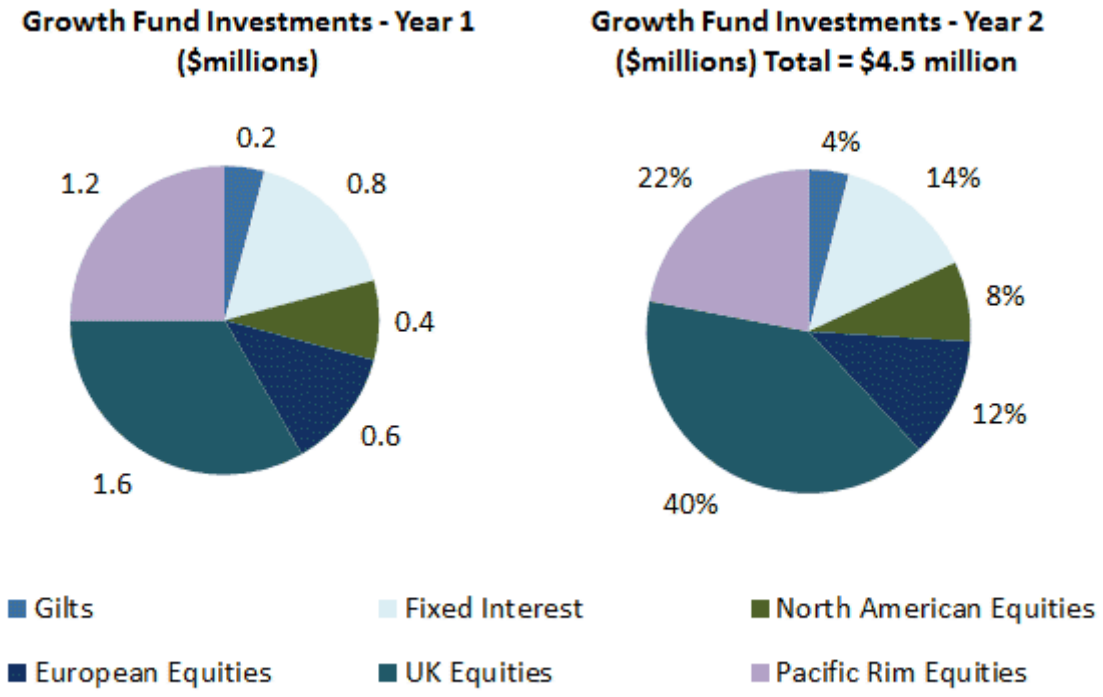
Q22 Which type of investment shows the largest difference between Year 1 and Year 2 in the proportion it contributed to the total Growth Fund?

(A)) Gilts
(B) Fixed interest
(C)) North American Equities
(D)) UK Equities
(E) Pacific Rim Equities

Step 1 *– calculate the proportion of the fund that each investment made up in Year 1*
Gilts = 0.2 / 4.8 = 4.17%
Fixed Interest = 0.8 / 4.8 = 16.67%
North American Equities = 0.4 / 4.8 = 8.33%
European Equities = 0.6 / 4.8 = 12.5%
UK Eequities = 1.6 / 4.8 = 33.33%
Pacific Rim Equities = 1.2 / 4.8 = 25%

Step 2 *– compare these figures to the % figures shown in Year 2's pie-chart*
Gilts = 4.17% vs. 4%
Fixed Interest = 16.67% vs. 14%
North American Equities = 8.33% vs. 8%
European Equities = 12.5% vs. 12%
UK Equities = 33.33% vs. 40%
Pacific Rim Equities = 25% vs. 22%

Thus the correct answer is (D), UK Equities



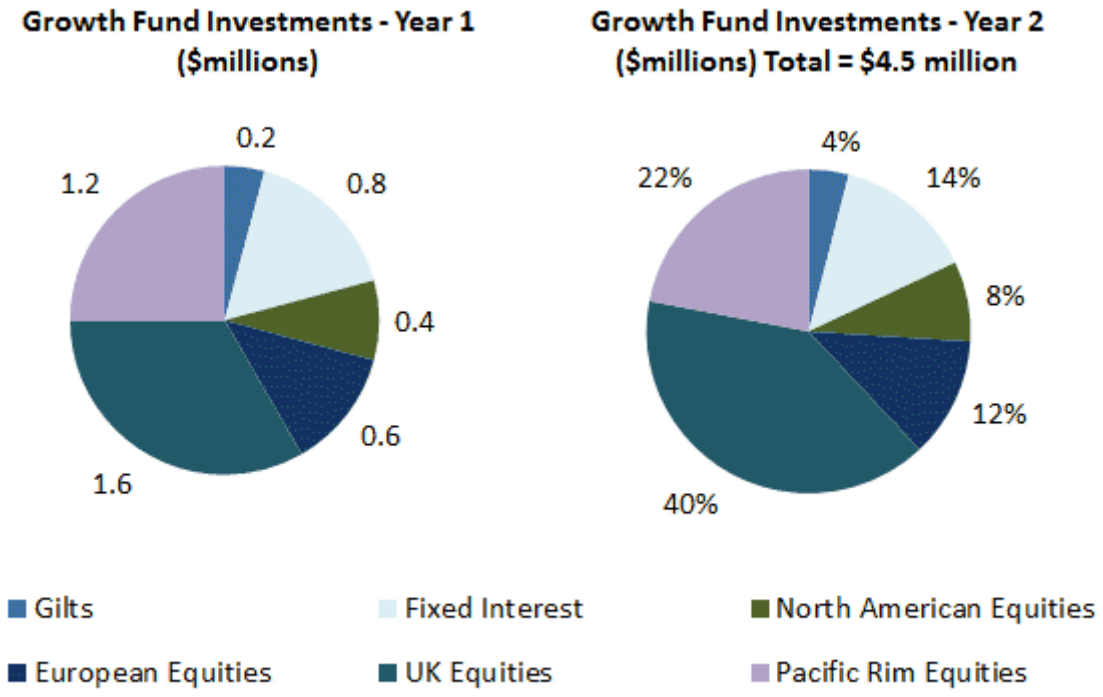
Q23 If the proportional change in the Growth Fund between Year 1 and Year 2 continued over subsequent years, what would be the projected Growth Fund value in Year 6?

(A)) $3.48 million
(B)) $3.51 million
(C)) $3.71 million
(D)) $5.73 million
(E)) $5.95 million

Step 1 *– Calculate the proportional change in the Growth Fund between Year 1 and 2*
(4.8 – 4.5) / 4.8 = - 6.25%

Step 2 *– Apply this % to calculate the growth Fund value each year up to Year 6*
Year 3: 93.75% x 4.5 = 4.2188
Year 4: 93.75% x 4.2188 = 3.955
Year 5: 93.75% x 3.955 = 3.708
Year 6: 93.75% x 3.708 = $3.476 million

Thus the correct answer is (A), $3.48 million



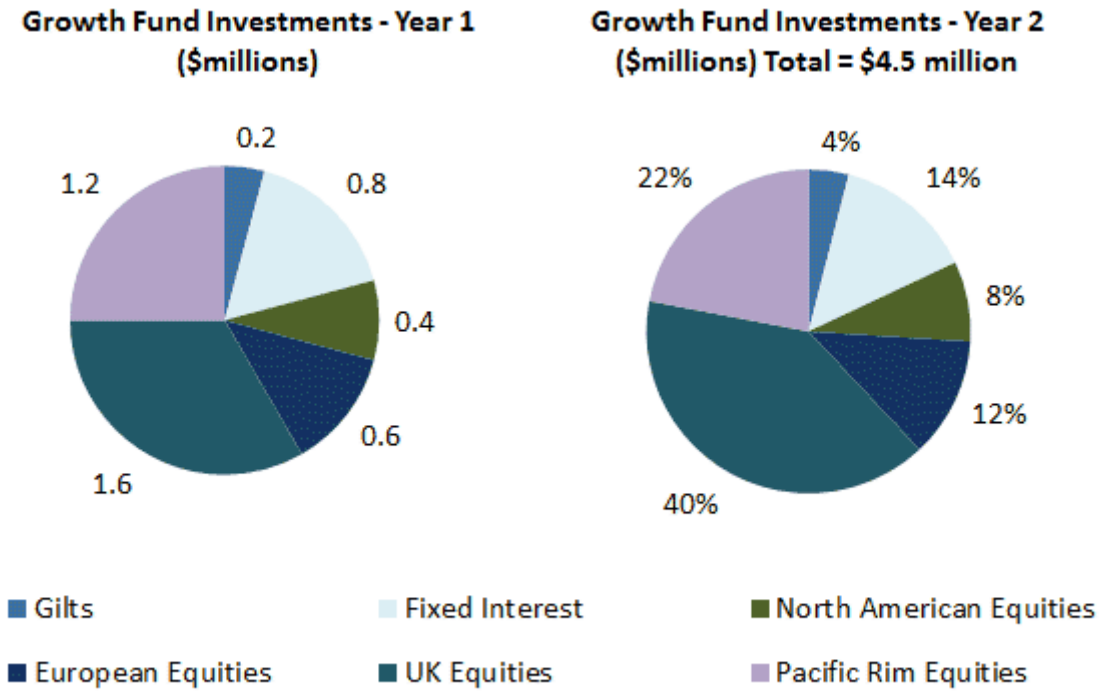
Q24 If in Year 2 the amount invested in Year 1's Fixed Interest fund had been sold and converted into European Equity funds, what is the value of European Equity funds in Year 2? (Assume no charges are incurred).

(A) $540,000
(B) $700,000
(C) $800,000
(D)) $1.24 million
(E)) $1.34 million

Step 1 *– Calculate the Year 2 amount of European Equity funds*
European Equity: 12% x $4.5 million = $540,000

Step 2 *- Sum the Year 1 Fixed Interest and Year 2 European Equity investments*
$800,000 + $540,000 = $1,340,000

Thus the correct answer is (E), $1.34 million



Q25 In Year 3 the percentage of the Growth Fund held in each investment type is the same as in Year 1. The total value of the Growth Fund increases by 14% of the Year 2 value. What is the value of Year 3's holding in UK Equities?

(A) $1,530,000
(B) $1,170,000
(C) $1,710,000
(D) $2,040,000
(E) $2,030,000

Step 1 *– Calculate the percentage holding in UK Equities*
1.6 / 4.8 = 33.33%

Step 2 *– Calculate the increased Growth Fund value*
$4.5 million x 114% = $5,130,000

Step 3 *– Calculate the value of the holding in UK Equities*
$5,130,000 x 33.33% = $1,710,000

Thus the correct answer is (C), $1,710,000

£	Jan	Feb	March	April	May
Total sales	136,000	135,000	136,500	156,000	145,000
Operating expenses	61,000	63,000	65,000	50,000	55,000
Income	£75,000	£72,000	£71,500	£106,000	£90,000
Current assets	66,500	63,000	65,000	68,000	66,000
Property assets	36,000	35,500	36,000	38,000	36,500
Fixed assets	38,000	34,000	32,000	45,000	40,000
Total assets	£140,500	£132,500	£133,000	£151,000	£142,500
Liabilities	34,400	35,600	33,000	35,000	33,500

Working Capital to Total Assets ratio = (Current Assets – Liabilities)/ Total Assets

Q26 Which month has the lowest asset turnover value? (Use the formula Asset Turnover = Total Sales / Fixed Assets)

(A) January
(B) February
(C) March
(D) April
(E) May

Calculate Asset Turnover = Total Sales / Fixed Assets for each month
Jan: 136,000 / 38,000 = 3.58
Feb: 135,000 / 34,000 = 3.97
March: 136,500 / 32,000 = 4.27
April: 156,000 / 45,000 = 3.47
May: 145,000 / 40,000 = 3.63

Thus the correct answer is (D), April

£	Jan	Feb	March	April	May
Total sales	136,000	135,000	136,500	156,000	145,000
Operating expenses	61,000	63,000	65,000	50,000	55,000
Income	£75,000	£72,000	£71,500	£106,000	£90,000
Current assets	66,500	63,000	65,000	68,000	66,000
Property assets	36,000	35,500	36,000	38,000	36,500
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Total assets	£140,500	£132,500	£133,000	£151,000	£142,500
Liabilities	34,400	35,600	33,000	35,000	33,500

Working Capital to Total Assets ratio = (Current Assets – Liabilities)/ Total Assets

Q27 Compared to May's figures, Total sales for June show an increase of 8% and Operating expenses show a decrease of 7%. What is June's Income?

(A) £105,450
(B) £95,450
(C) £85,450
(D) £75,450
(E) Can't tell from the data

Step 1 *– The table shows that Income = Total sales – Operating expenses*

Step 2 *– Calculate June's values for Total sales and Operating expenses*
Total sales = 145,000 x 108% = 156,600
Operating expenses = 55,000 x 93% = 51,150

Step 3 *– Apply the formula Income = Total sales – Operating expenses*
Income = 156,600 - 51,150 = £105,450

Thus the correct answer is (A), £105,450

£	Jan	Feb	March	April	May
Total sales	136,000	135,000	136,500	156,000	145,000
Operating expenses	61,000	63,000	65,000	50,000	55,000
Income	£75,000	£72,000	£71,500	£106,000	£90,000
Current assets	66,500	63,000	65,000	68,000	66,000
Property assets	36,000	35,500	36,000	38,000	36,500
Fixed assets	38,000	34,000	32,000	45,000	40,000
Total assets	£140,500	£132,500	£133,000	£151,000	£142,500
Liabilities	34,400	35,600	33,000	35,000	33,500

Working Capital to Total Assets ratio = (Current Assets – Liabilities)/ Total Assets

Q28 Which month has the highest Working capital to Total assets ratio?

(A) January
(B) February
(C) March
(D) April
(E) May

Step 1 *– Use the equation provided to calculate the working capital for each month*
Working Capital to Total Assets ratio = (Current Assets – Liabilities) / Total Assets
January: (66,500 – 34,400) / 140,500 = 0.23
February: (63,000 – 35,600) / 132,500 = 0.21
March: (65,000 – 33,000) / 133,000 = 0.24
April: (68,000 – 35,000) / 151,000 = 0.22
May: (66,000 – 33,500) / 142,500 = 0.23

Thus the correct answer is (C), March

Q29 If the average value of Total assets between the months of April to June is £150,000, what is the value of Total assets in June?

(A) £154,500
(B) £155,000
(C) £155,500
(D) £156,000
(E) £156,500

Enter the Total assets figures for April to June into an equation, where z = Total assets in June.
151,000 + 142,500 + z = 150,000 x 3
z = 450,000 – 151,000 – 142,500 = 156,500

Thus the correct answer is (E), £156,500

£	Jan	Feb	March	April	May
Total sales	136,000	135,000	136,500	156,000	145,000
Operating expenses	61,000	63,000	65,000	50,000	55,000
Income	£75,000	£72,000	£71,500	£106,000	£90,000
Current assets	66,500	63,000	65,000	68,000	66,000
Property assets	36,000	35,500	36,000	38,000	36,500
Fixed assets	38,000	34,000	32,000	45,000	40,000
Total assets	£140,500	£132,500	£133,000	£151,000	£142,500
Liabilities	34,400	35,600	33,000	35,000	33,500

Working Capital to Total Assets ratio = (Current Assets – Liabilities)/ Total Assets

Q30 If the average monthly sales for the first five months of the year was the same for the months of June to December, what was the total annual sales?

(A) £1,500,400
(B) £1,600,400
(C) £1,700,400
(D) £1,800,400
(E) £1,900,400

Step 1 *– Calculate the total sales for Jan – May*
136,000 + 135,000 + 136,500 + 156,000 + 145,000 = 708,500

Step 2 *– Since the monthly average is the same, multiply this figure by 12 / 5*
708,500 x 12 / 5 = £1,700,400

Thus the correct answer is (C), £1,700,400

NUMERICAL REASONING TEST

8

Instructions

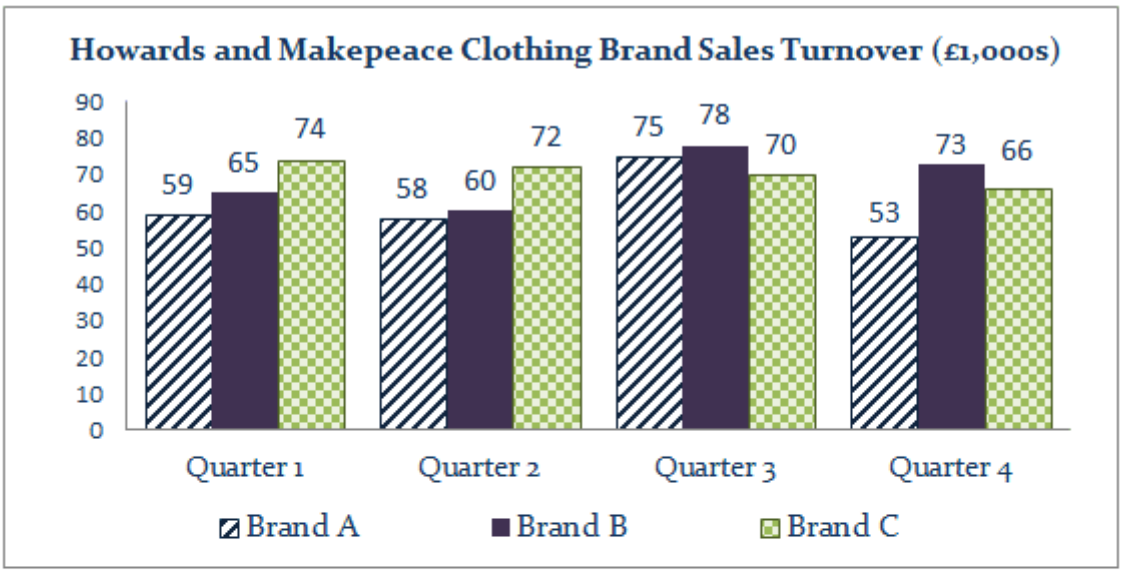
This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**



Breakdown of the previous month's total sales turnover and profit

	Brand A Sales Turnover and Profit (third month of 4th quarter)	Estimate
Sales Turnover	23,000	25,000
Sales Tax (14%)	3,220	3,500
Net Turnover	19,780	21,500
Variable Costs	5,500	5,900
Fixed Costs	3,300	3,400
Profit	10,980	12,200

Q1 If Howards and Makepeace's annual sales target for Brand B was £690,000, what fraction of this were actual Brand B sales?

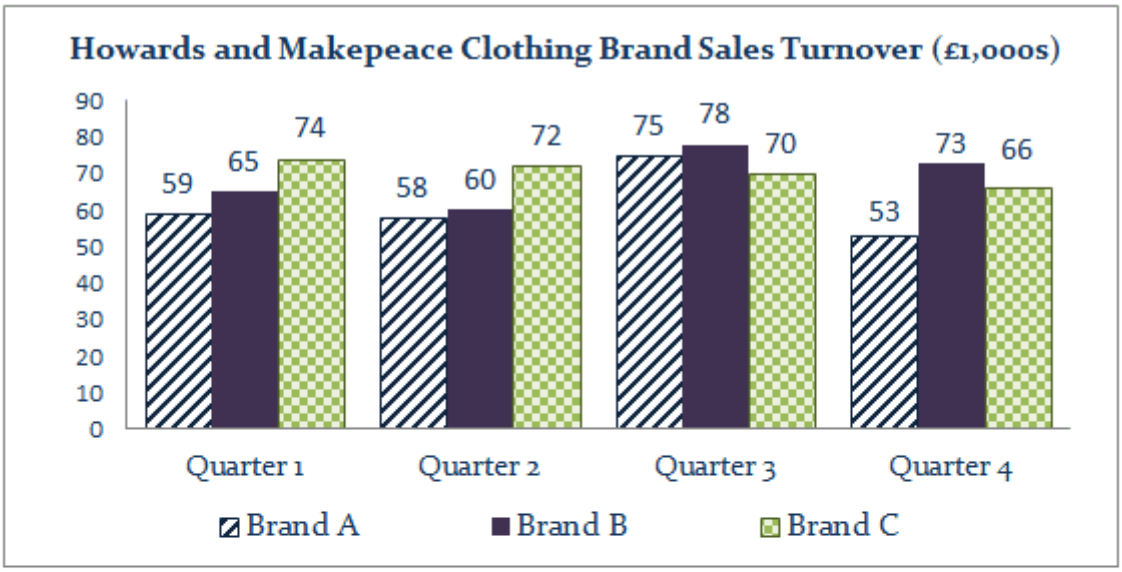
(A) 1/3
(B) 22/70
(C) 3/5
(D) 2/5

The information that we need is shown in the graph Clothing brand sales.

Step 1 *– Calculate the total annual Brand b sales by adding the 4 quarters*
65 + 60 + 78 + 73 = 276

Step 2 *– Calculate the fraction compared to the annual sales target*
276 / 690 = 2/5

Thus the correct answer is (D) 2/5



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Net Turnover	19,780	21,500
Variable Costs	5,500	5,900
Fixed Costs	3,300	3,400
Profit	10,980	12,200

Q2 What are the average sales per quarter for each brand (in the order Brand C; B; A)?

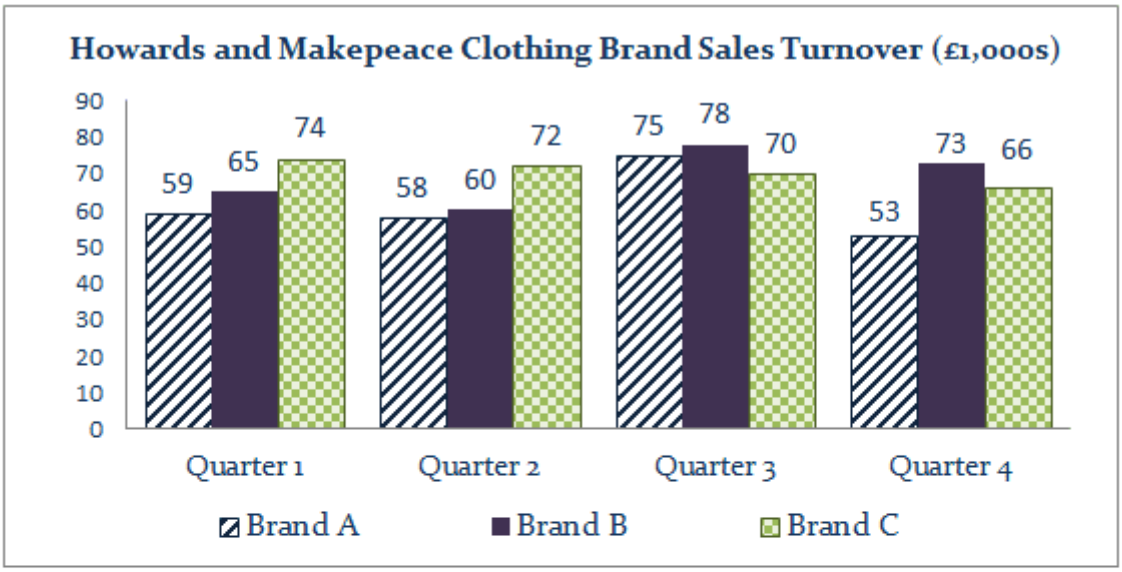
(A) 70,500; 69,000; 61,250
(B) 7,050; 6,900; 6,125
(C) 61,250; 69,000; 70,500
(D) 61; 71; 69

The information that we need is shown in the graph Clothing brand sales.

Step 1 *- Calculate the total clothing sales, as follows;*
Brand a = 59 + 58 + 75 + 53 = 245
Brand b = 65 + 60 + 78 + 73 = 276
Brand c = 74 + 72 + 70 + 66 = 282

Step 2 *- Calculate the average sales per quarter, as follows;*
Brand a (245 / 4) = 61.25 i.e. 61,250
Brand b (276 / 4) = 69 i.e. 69,000
Brand c (282 / 4) = 70.5 i.e. 70,500

Thus the correct answer is (A) 70,500, 69,000, 61,250



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Net Turnover	19,780	21,500
Variable Costs	5,500	5,900
Fixed Costs	3,300	3,400
Profit	10,980	12,200

Q3 What was Brand A's total sales turnover for the first and second month in Quarter 4?

(A) £30,000
(B) £28,000
(C) £25,000
(D) £23,000

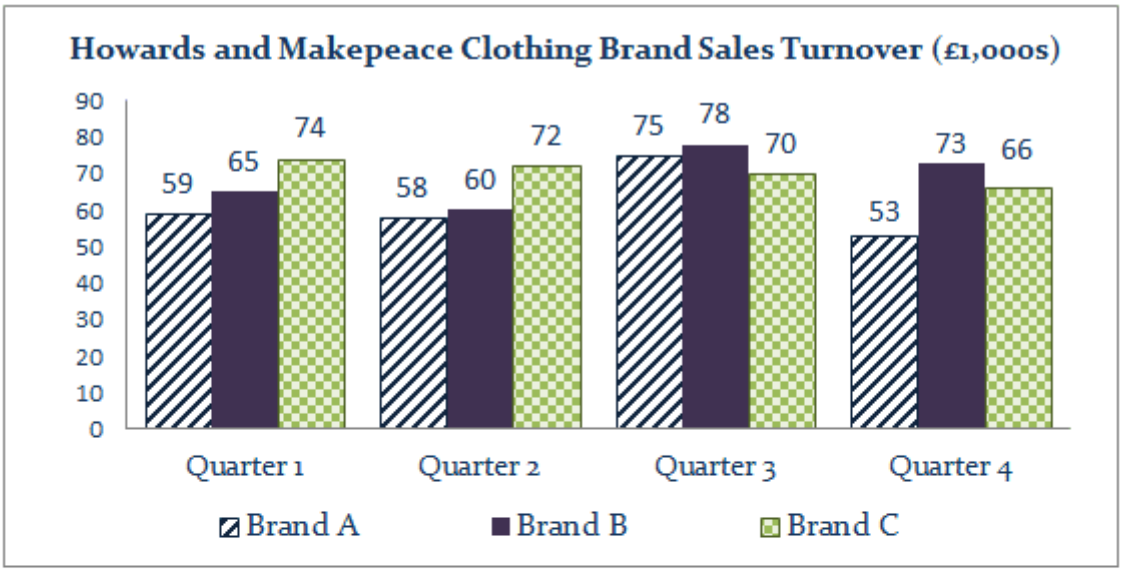
The information that we need is shown in the table Previous month's sales turnover and profit and the graph Clothing brand sales.

Step 1 *- From the table Previous month's sales turnover and profit …*
…Previous month's sales turnover = 23,000

Step 2 *- From the graph Clothing brand sales, obtain the quarter's sales for Brand a (53000)*

Step 3 *– Calculate the difference*
53,000 – 23,000 = 30,000

Thus the correct answer is (A) £30,000



Breakdown of the previous month's total sales turnover and profit

	Brand A Sales Turnover and Profit (third month of 4th quarter)	Estimate
Sales Turnover	23,000	25,000
Sales Tax (14%)	3,220	3,500
Net Turnover	19,780	21,500
Variable Costs	5,500	5,900
Fixed Costs	3,300	3,400
Profit	10,980	12,200

Q4 If the variable costs had been 5% higher for the previous month then what would have been the impact on Brand A's profit?

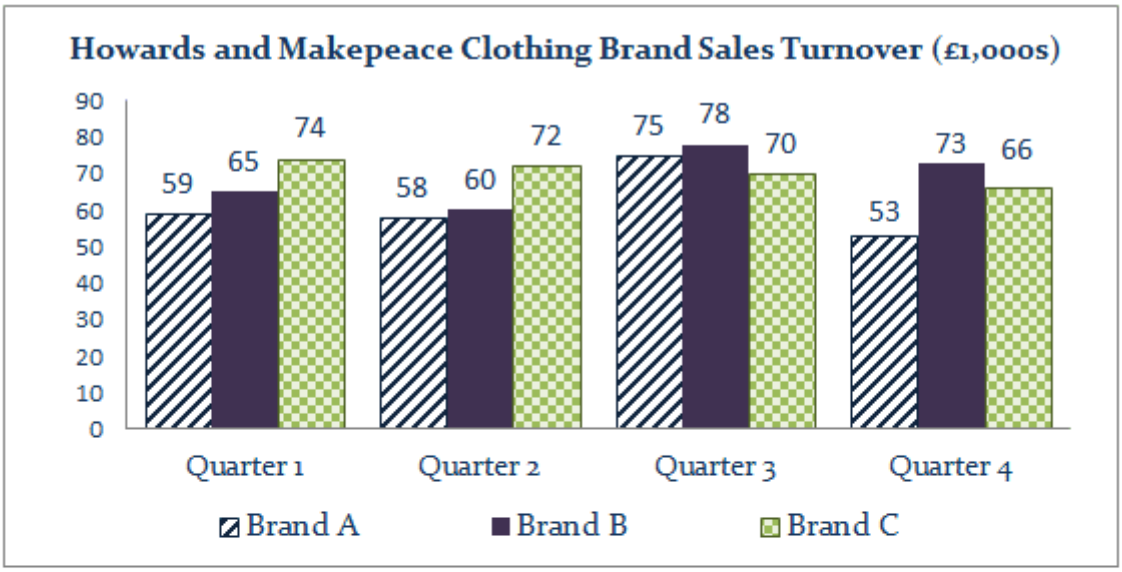
(A) £165 increase
(B) £275 decrease
(C) £275 increase
(D) No effect on profit

The information that we need is shown in Previous month's sales turnover and profit. We are told this table gives data for the previous month, which is Quarter 4, month 3.

Step 1 *- Calculate the 5% increase in variable costs for the previous month.*
5,500 x 5/100 = £275

Step 2 *– As shown in the table Previous month's sales turnover and profit as the variable costs increase so profit decreases by the same amount.*

Thus the correct answer is (B) £275 decrease



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Net Turnover	19,780	21,500
Variable Costs	5,500	5,900
Fixed Costs	3,300	3,400
Profit	10,980	12,200

Q5 The sales tax was calculated incorrectly for Quarter 4 Month 3 and should have been 16.5%. The mistake caused the Net Turnover for Brand A to be reported as being what?

(A) £575 too high
(B) £1650 too low
(C) 16.5% too high
(D) £575 too low

The information that we need is shown in the Table; Previous month's sales turnover and profit.

Step 1 *– Calculate the difference in sales tax.*
16.5 – 14 = 2.5%

Step 2 *– Calculate the difference in tax due.*
23000 x 2.5/100 = £575

Step 3 *- The Sales tax is actually higher so the mistake would have made the Net Turnover appear higher than in truth.*

Thus the correct answer is (A) £575 too high.

Callz Ltd	Number of Sales and Support Staff	Monthly Sales Achieved (£)	Monthly Sales Target (£)
High Street	4	38,200	35,000
Internet	4	42,500	40,000
Catalogue	2	43,800	45,000
Telephone	1	55,400	60,000

CF plc	Number of Sales and Support Staff	Monthly Sales Achieved (£)	Monthly Sales Target (£)
High Street	5	38,200	40,000
Internet	4	42,000	45,000
Catalogue	2	47,800	50,000
Telephone	2	64,000	60,000

Q6 Which operation achieved the highest sales per Sales and Support staff?

(A) Telephone (CF plc)
(B) Catalogue (CF plc)
(C) High Street (CF plc)
(D) Telephone (Callz Ltd)

The information that we need is shown in the monthly sales figure tables for CF plc and Callz Ltd.

Step 1 *- It would take a long time to work out the average sales achieved for each operation across CF plc and Callz Ltd. If you focus on the sales and support staff numbers (compared to the monthly sales achieved) it becomes clear that the highest sales per Sales and Support staff will be either Telephone (Callz Ltd) or Telephone (CF plc). Then, since there is only one sales/support staff member at Callz Ltd (55,400 / 1 = 55,400) this must be higher than CF's (64,000 / 2 = 32,000)*

Thus the correct answer is (D) Telephone (Callz Ltd)

Callz Ltd	Number of Sales and Support Staff	Monthly Sales Achieved (£)	Monthly Sales Target (£)
High Street	4	38,200	35,000
Internet	4	42,500	40,000
Catalogue	2	43,800	45,000
Telephone	1	55,400	60,000

CF plc	Number of Sales and Support Staff	Monthly Sales Achieved (£)	Monthly Sales Target (£)
High Street	5	38,200	40,000
Internet	4	42,000	45,000
Catalogue	2	47,800	50,000
Telephone	2	64,000	60,000

Q7 Callz Ltd plans to reduce its staff headcount by two. The remaining staff will be split across an online team and an offline team to a ratio of 1:2. If the online group sales target is £180,000, what is the average target per member of the online team?

(A) £50,000
(B) £60,000
(C) £40,000
(D) £35,000

The information that we need is shown in the Callz Ltd table.

Step 1 - *A simple equation needs to be solved to determine the size of the online team = X*
X + 2X = 11 (current headcount) – 2 (reduction in headcount) = 9
3X = 9, so X = 3 i.e. 3 staff members in the online team.

Step 2 *– Calculate the new sales target per member of the online team*
180,000 ÷ 3 = £60,000

Thus the correct answer is (B) £60,000

Callz Ltd	Number of Sales and Support Staff	Monthly Sales Achieved (£)	Monthly Sales Target (£)
High Street	4	38,200	35,000
Internet	4	42,500	40,000
Catalogue	2	43,800	45,000
Telephone	1	55,400	60,000

CF plc	Number of Sales and Support Staff	Monthly Sales Achieved (£)	Monthly Sales Target (£)
High Street	5	38,200	40,000
Internet	4	42,000	45,000
Catalogue	2	47,800	50,000
Telephone	2	64,000	60,000

Q8 Across both companies, which retail operation had the lowest absolute difference between monthly sales and sales target?

(A) Internet (Callz Ltd)
(B) Catalogue (CF plc)
(C) High Street (Callz Ltd)
(D) Catalogue (Callz Ltd)

The information that we need is shown in both tables.

Step 1 *- The calculation for each company is shown in the tables below (with the answer marked in bold):*

Callz

High Street	*38200 – 35000 = 3200*
Internet	*42500 – 40000 = 2500*
Catalogue	***43800 – 45000 = -1200***
Telephone	*55400 – 60000 = -4600*

CF PLC

High Street	*38200 – 40000 = -1800*
Internet	*42000 – 45000 = -3000*
Catalogue	*47800 – 50000 = -2200*
Telephone	*64000 – 60000 = 4000*

Thus the correct answer is (D) Catalogue (Callz)

Callz Ltd	Number of Sales and Support Staff	Monthly Sales Achieved (£)	Monthly Sales Target (£)
High Street	4	38,200	35,000
Internet	4	42,500	40,000
Catalogue	2	43,800	45,000
Telephone	1	55,400	60,000

CF plc	Number of Sales and Support Staff	Monthly Sales Achieved (£)	Monthly Sales Target (£)
High Street	5	38,200	40,000
Internet	4	42,000	45,000
Catalogue	2	47,800	50,000
Telephone	2	64,000	60,000

Q9 What is the ratio of CF plc's actual monthly telephone sales to overall monthly CF plc sales?

(A) 1:3
(B) 1:30
(C) 1:4
(D) 1:5

The information that we need is shown in the CF plc table.

Step 1 *- Calculate total sales = 192,000*

Step 2 *– Calculate telephone sales as a ratio to total sales*
64000:192000 = 1:3

Thus the correct answer is (A) 1:3

Callz Ltd	Number of Sales and Support Staff	Monthly Sales Achieved (£)	Monthly Sales Target (£)
High Street	4	38,200	35,000
Internet	4	42,500	40,000
Catalogue	2	43,800	45,000
Telephone	1	55,400	60,000

CF plc	Number of Sales and Support Staff	Monthly Sales Achieved (£)	Monthly Sales Target (£)
High Street	5	38,200	40,000
Internet	4	42,000	45,000
Catalogue	2	47,800	50,000
Telephone	2	64,000	60,000

Q10 Following a merger, the four retail operations are combined with each other across Callz Ltd and CF plc. The targets are also combined for each retail operation, with 5% added to each target for each staff member that works in the combined retail operation. Which combined retail operation has a sales target of £119,000?

(A) High Street
(B) Internet
(C) Catalogue
(D) Cannot say

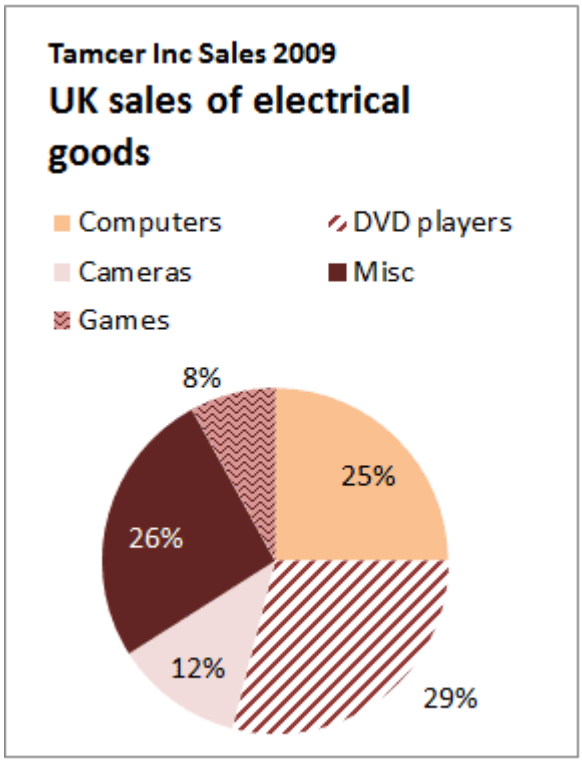
The information that we need is shown in both tables.

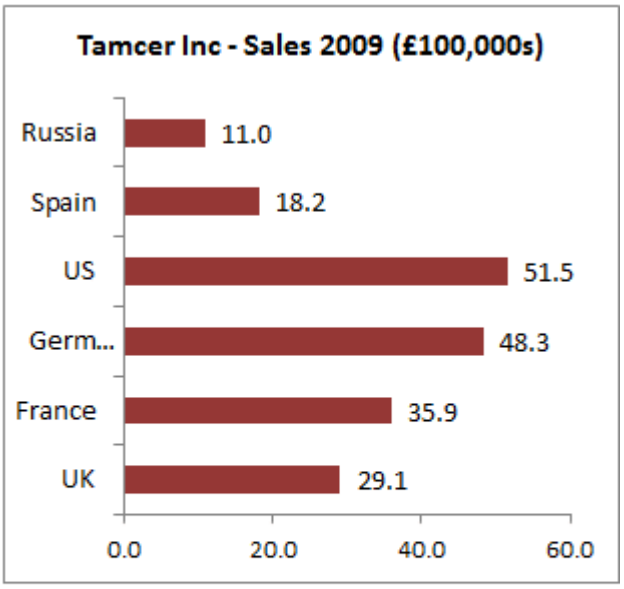
Step 1 *– Calculate the combined sales target per retail operation across the two stores, as follows:*
High Street = 75,000
Internet = 85,000
Catalogue = 95,000
Telephone = 120,000

Step 2 *– Calculate the increased sales target based upon the combined number of employees (5% increase for each employee).*

Retail operation	*Combined no. Employees*	*Increased sales target*
High Street	*9*	*75,000 x 145% = £108,750*
Internet	*8*	*85,000 x 140% = £119,000*
Catalogue	*4*	*95,000 x 120% = £114,000*
Telephone	*3*	*120,000 x 115% = £138,00*

Thus the correct answer is (B) Internet





Q11 The US operations exceeded their sales target for 2009 by 25%. If the target was split equally across 4 American regions, what was the individual sales target for each region?

(A)) None of these
(B)) £1.03 million
(C)) £0.58 million
(D)) £0.15 million

The information that we need is shown in the bar chart Tamcer Inc.

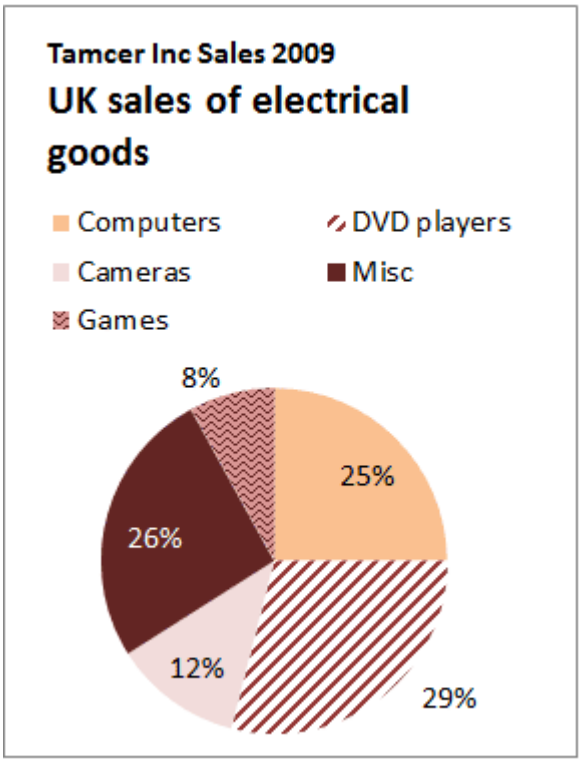
Step 1 *- US sales = 51.5 (£100,000)*
Ignore the £100,000 during the calculation.

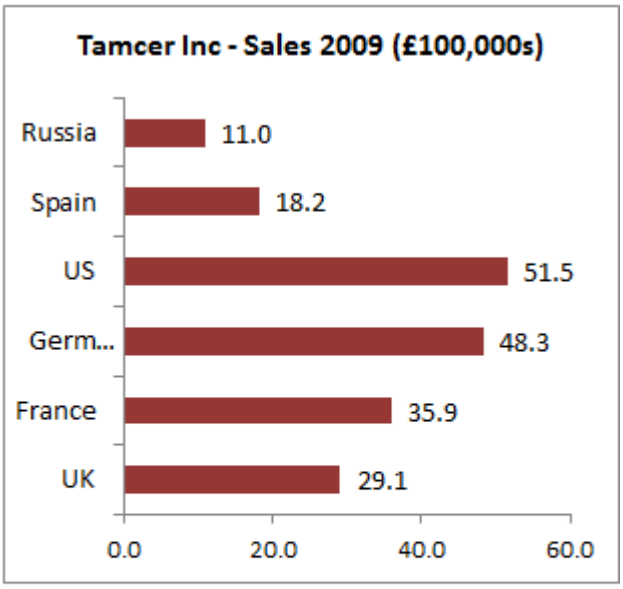
Step 2 *- 51.5 / 4 = 12.875 per American region.*

Step 3 *- 12.875 represents 125%*
Individual regional target = 100 x 12.875 / 125 = 10.3

Step 4 *- 10.3 (£100,000) = £1.03 million*

Thus the correct answer is (B) £1.03 million





Q12 In 2009, which categories of electrical goods each sold more than £0.75 million in the UK?

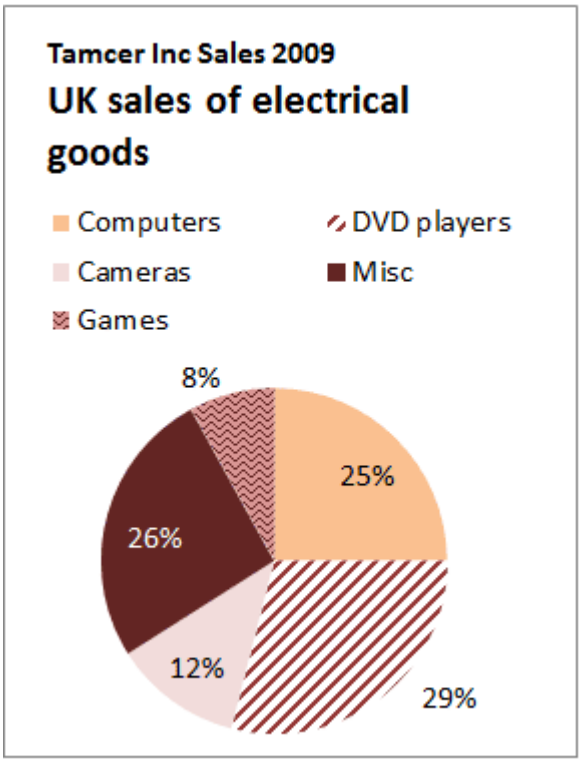
(A) Misc
(B) Misc, Computers and DVD players
(C) Misc and DVD players
(D)) Computers and DVD players

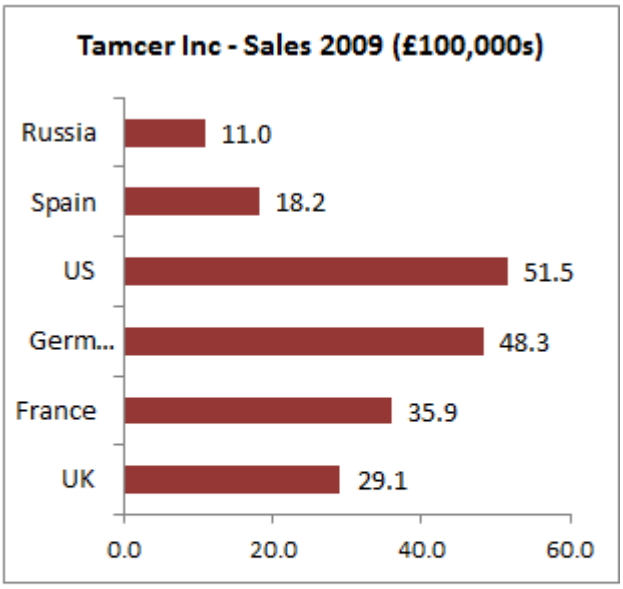
The information that we need is shown in the graph and pie chart.

Step 1 *– The Tamcer Inc – Sales 2009 graph gives the total UK sales = £2.91 million*

Step 2 *– The UK sales of electrical goods pie chart gives the % sales breakdown for each type of electrical good. Calculate the actual sales for each type of electrical good, as follows:*
Computers (25%) = 0.73 million
DVD players (29%) = 0.84 million
Cameras (12%) = 0.35 million
Misc (26%) = 0.76 million
Games (8%) = 0.23 million

Thus the correct answer is (C) Misc and DVD players





Q13 Tamcer Inc's Russian business is split into 2 regions: Eastern Region and Western Region. Eastern Region's sales were the equivalent of 300% of the Western Region's sales. What were the Eastern Region's sales?

(A) £275,000
(B) £1,275,000
(C) £825,000
(D) None of these

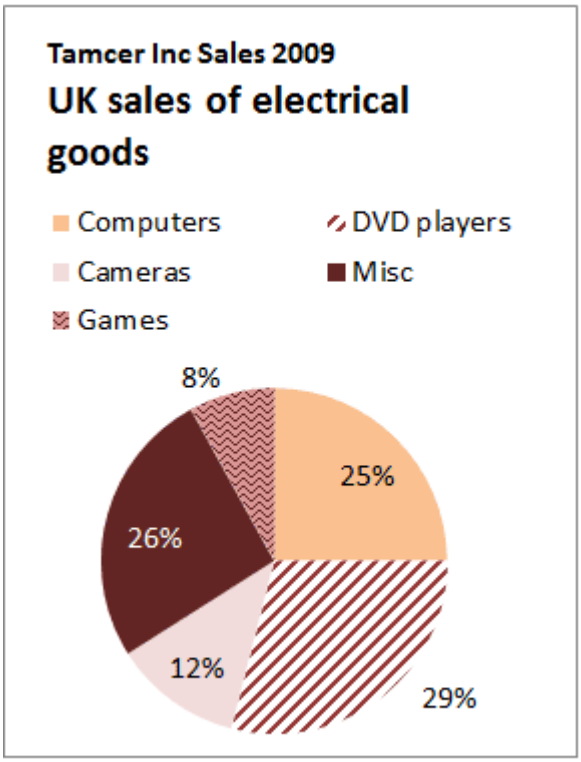
The information that we need is shown in the graph Tamcer Inc.

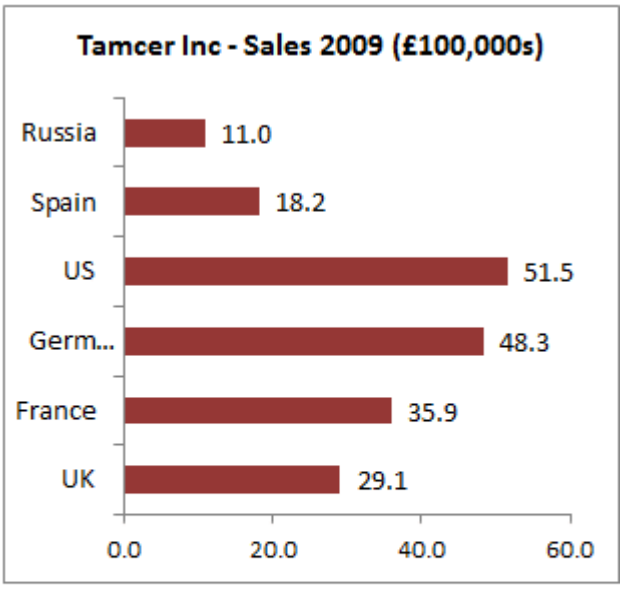
Step 1 *- Russian sales = 11 (£100,000) = £1,100,000*

Step 2 *- Eastern Region sales + Western Region sales = £1,100,000 = 300% + 100%*
1% = £1,100,000 / 400 = £2750

Step 3 *- Eastern Region's sales = 300% = £2750 x 300 = £825,000*

Thus the correct answer is (C) £825,000





Q14 If the absolute level of computers, games and cameras sold in France mirrors that of the UK, what is the total value of DVD players and Misc electrical goods sold in Tamcer's French operations?

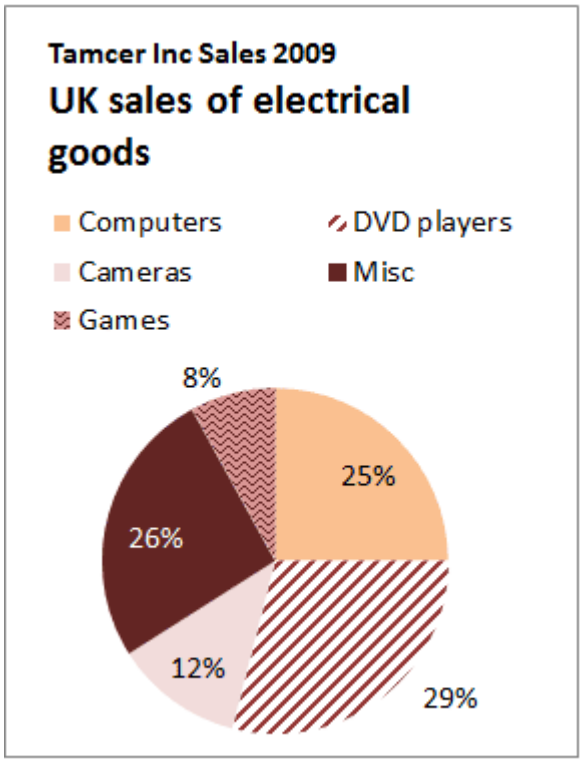
(A) £2,280,500
(B) £1,309,500
(C) £1,909,500
(D)) Can't tell from the data

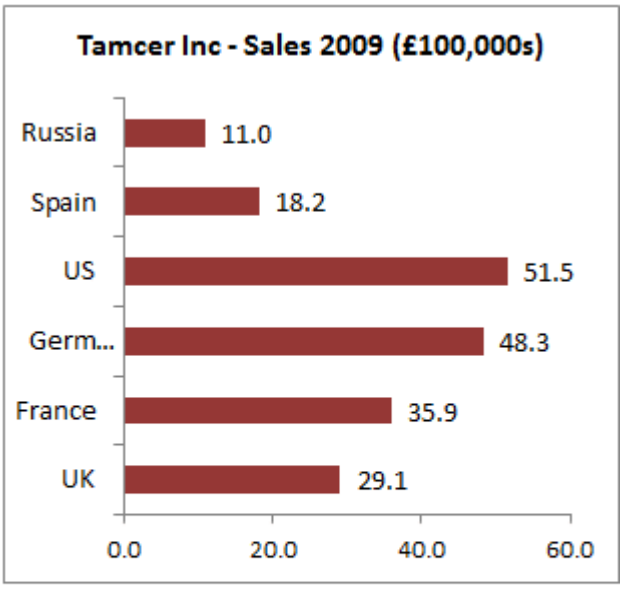
The information that we need is shown in the graph and pie-chart.

Step 1 *– Calculate the French sales of computers, games and cameras (using UK figures).*
Computers = £727,500
Cameras = £349,200
Games = £232,800
TOTAL = £1,309,500

Step 2 *– Calculate the difference between this figure and total electrical goods sold in France*
£3,590,000 - £1,309,500 = £2,280,500

Thus the correct answer is (A) £2,280,500





Q15 The total worldwide sales for Tamcer Inc. are £29 million. What level of sales is accounted for by countries other than those shown?

(A)) £19.6 million
(B)) £9.6 million
(C)) £10.6 million
(D)) £9.4 million

The information that we need is shown in the graph Tamcer Inc.

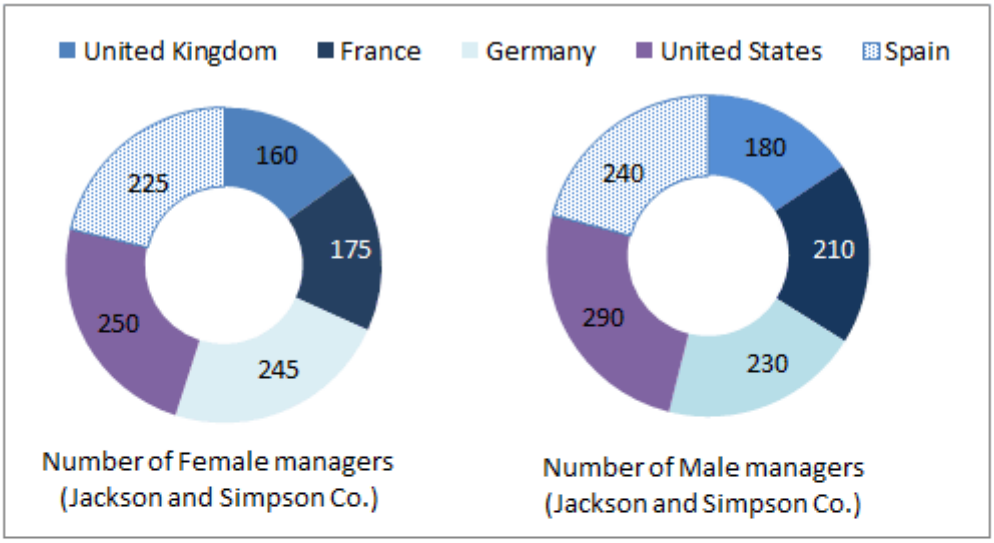
Step 1 *- Calculate the total sales shown:*

UK	*29.1*
France	*35.9*
Germany	*48.3*
US	*51.5*
Spain	*18.2*
Russia	*11*
TOTAL	*= 194*

Step 2 *- 194 (£100,000's) = £19.4 million*

Step 3 *- £29 million - £19.4 million = £9.6 million.*

Thus the correct answer is (B) £9.6 million



Jackons and Simpson Co. Director Salaries

Country of Operations	Director Salary average for this year (£)	Budget Increase for next year (%)
United Kingdom	92,000	4
France	94,500	8
Germany	118,000	6
United States	115,000	6
Spain	84,000	5

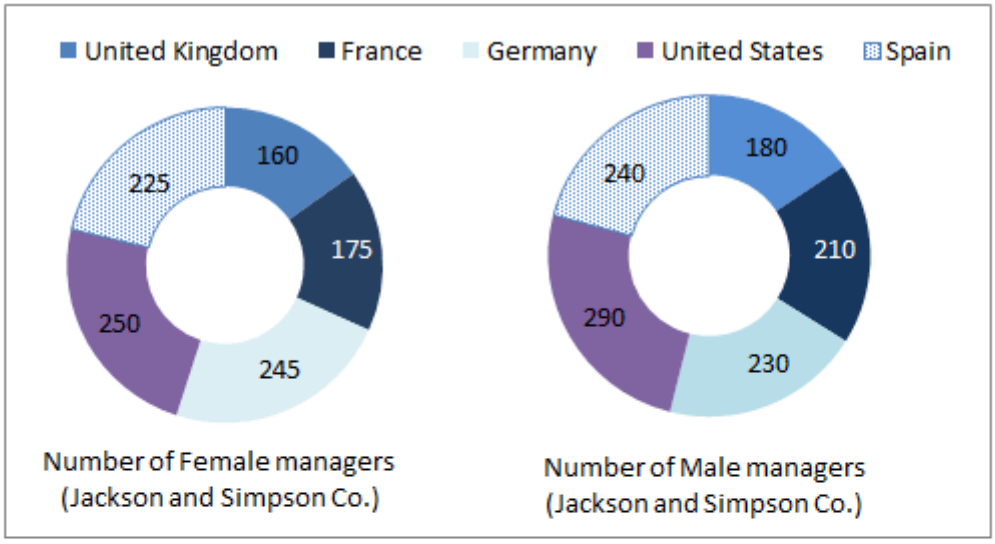
Q16 If instead of being introduced in full next year, the budget salary increases are phased in over the next three years (at a rate of 2% per year), what will be the average United States Director's salary in 2 years time?

(A) £119,646
(B) £121,900
(C) £119,600
(D) £122,000

The information that we need is shown in the table Jackson and Simpson Co. Director salaries.

Step 1 *- Calculate increases in average Director salary over two years*
Year 1 = £115,000 + 2% = 115,000 x 102% = £117,300
Year 2 = £117,300 + 2% = 117,300 x 102% = £119,646

Thus the correct answer is (A) £119,646



Jackons and Simpson Co. Director Salaries

Country of Operations	Director Salary average for this year (£)	Budget Increase for next year (%)
United Kingdom	92,000	4
France	94,500	8
Germany	118,000	6
United States	115,000	6
Spain	84,000	5

Q17 Next year the rise in budget for a Spanish Director's average salary will be achieved through two consecutive pay-rises. If the first pay-rise is an increase of 2%, what will the second percentage increase have to be?

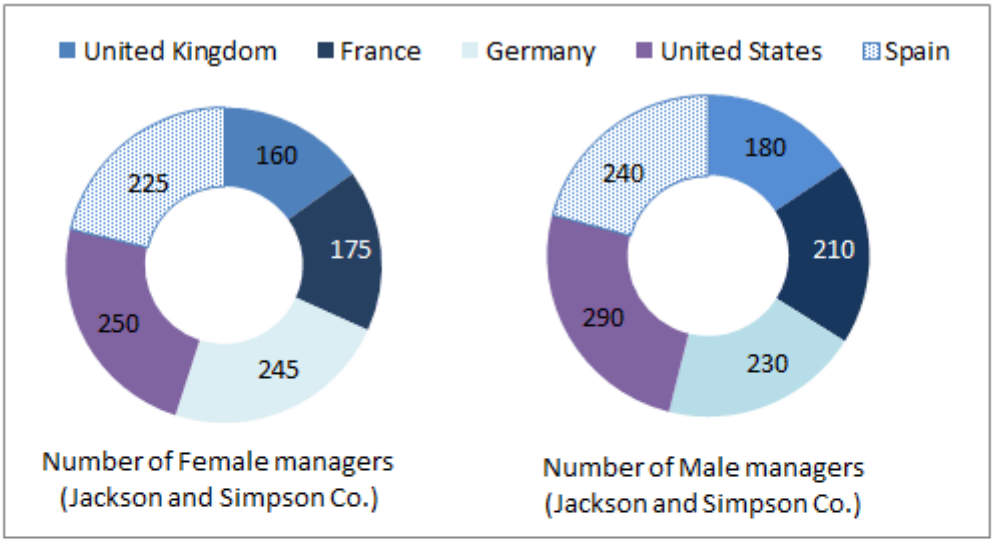
(A) 2.5%
(B) 2.6%
(C) 2.9%
(D) 3.0%

The information that we need is shown in the table Jackson and Simpson Co. Director salaries.
Step 1 *– Calculate the Spanish Director salary after the first increase of 2%*
£84,000 x 1.02 = £85,680

Step 2 *– Calculate the budgeted salary for the end of next year (5% increase).*
£84,000 x 105% = £88,200

Step 3 *– Calculate the percentage increase required to get from 85,680 to 88,200.*
88,200 ÷ 85,680 = 1.0294 i.e. an increase of 2.94%.

Thus the correct answer is (C) 2.9%



Jackons and Simpson Co. Director Salaries

Country of Operations	Director Salary average for this year (£)	Budget Increase for next year (%)
United Kingdom	92,000	4
France	94,500	8
Germany	118,000	6
United States	115,000	6
Spain	84,000	5

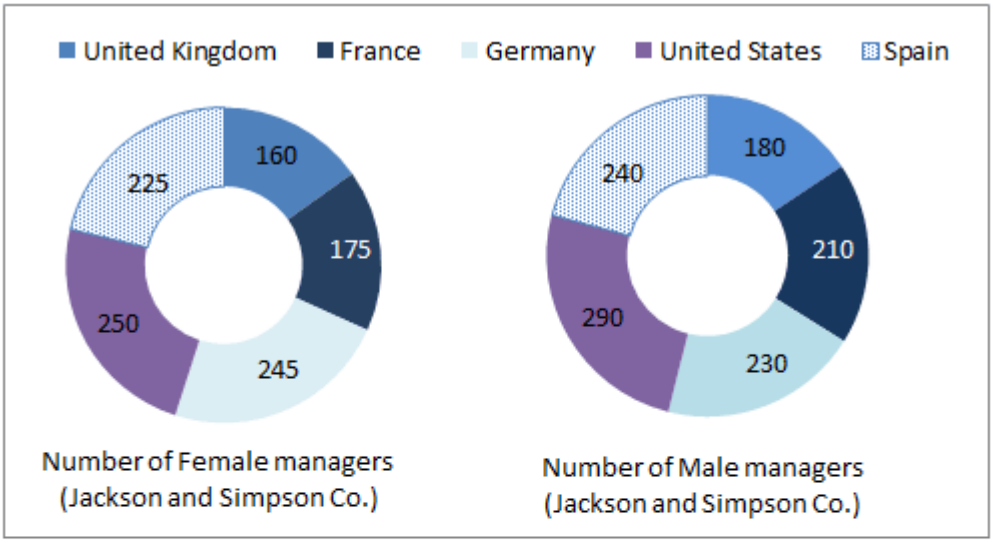
Q18 Directors and managers are allowed to purchase company shares (price = £4.50) in place of salary next year. Which country's average Director can buy the most number of shares, and which country has the most managers who can buy shares?

(A)) United States, United States
(B)) United States, Germany
(C)) Germany, United States
(D)) Germany, Germany

The information that we need is shown in the table Jackson and Simpson Director salaries.

Step 1 *– The question is actually asking you to calculate which country's Directors will be paid the most next year. So calculate next year's Director salaries for each country.*
UK = £92,000 + 4% = £95,680
France = £104,500 + 8% = £112,860
Germany = £118,000 + 6% = £125,080
United States = £115,000 + 6% = £121,900
Spain = £84,000 + 5% = £88,200
Step 2 *– Calculate the country that has the most managers who can buy shares*
This is the country with the largest number of male and female managers
United States = 250 + 290 = 540

Thus the correct answer is (C) Germany, United States



Jackons and Simpson Co. Director Salaries

Country of Operations	Director Salary average for this year (£)	Budget Increase for next year (%)
United Kingdom	92,000	4
France	94,500	8
Germany	118,000	6
United States	115,000	6
Spain	84,000	5

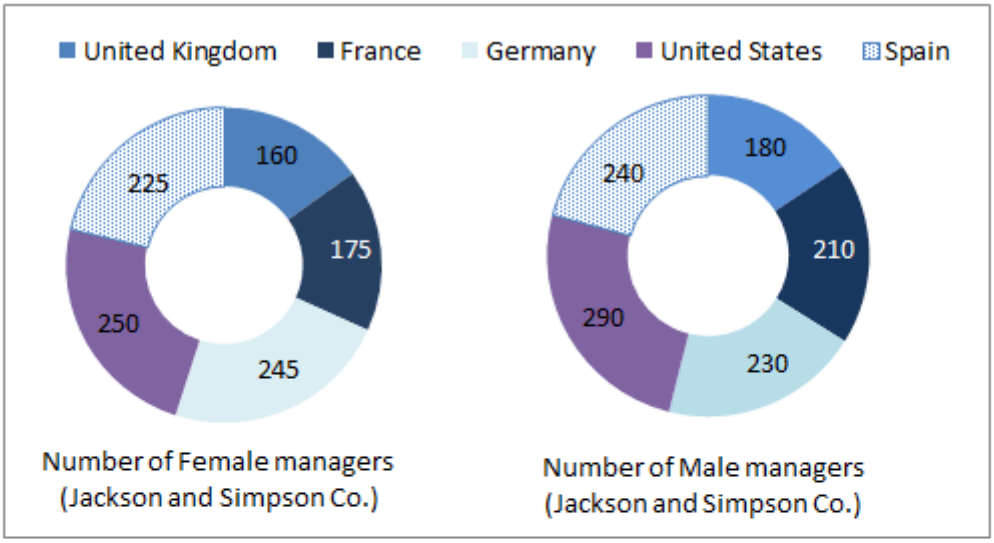
Q19 Put the countries in order of decreasing numbers of managers.

(A)) United States, Spain, Germany, France, United Kingdom
(B) Spain, United States, Germany, France, United Kingdom
(C)) United States, Germany, Spain, United Kingdom, France
(D)) United States, Germany, Spain, France, United Kingdom

The information that we need is shown in the two pie charts.

Step 1 *- Calculate the total number of male and female managers working in each country, as follows:*
United Kingdom = 160 + 180 = 340
France = 175 + 210 = 385
Germany = 245 + 230 = 475
United States = 250 + 290 = 540
Spain = 225 + 240 = 465

Thus the correct answer is (D) United States, Germany, Spain, France, United Kingdom



Jackons and Simpson Co. Director Salaries

Country of Operations	Director Salary average for this year (£)	Budget Increase for next year (%)
United Kingdom	92,000	4
France	94,500	8
Germany	118,000	6
United States	115,000	6
Spain	84,000	5

Q20 Which two countries have the same absolute difference in the number of female and male managers?

(A)) United Kingdom and United States
(B)) Germany and Spain
(C)) Germany and France
(D) France and Spain

The information that we need is shown in the two pie-charts.

Step 1 *- Calculate the difference in female and male managers for each country, as shown in the following table (with the answers marked in bold):*

	Female Managers	*Male Managers*	*Difference*
United Kingdom	*160*	*180*	*20*
France	*175*	*210*	*35*
Germany	*245*	*230*	***15***
United States	*250*	*290*	*40*
Spain	*225*	*240*	***15***

Thus the correct answer is (B) Germany and Spain

Current Year: Shevinshaw's Ltd Staff Numbers

	Marketing	Finance	Research	Sales	HR
Full-time employee	34	45	35	52	56
Part-time employee	12	21	14	15	20
Freelance employee	20	32	11	24	38

Shevinshaw's Ltd staff numbers by function

	Previous Year	*Next Year Projection*
Marketing	62	76
Finance	104	90
Research	74	72
Sales	82	94
HR	122	96

Q21 The HR Director at Shevinshaw's Ltd conducts a survey. An eighth of the full-time HR employees state that they would prefer to work part-time. If this occurred and other staff numbers remained the same, what would be the total number of part-time employees for this year?

(A) 37
(B) 89
(C) 27
(D)) 56

The information that we need is shown in the graph Staff numbers by function.

Step 1 *- An eighth of the full-time HR employees = 1/8 x 56 = 7*

Step 2 *- Total part-time workers = previous total part-time employees + 7.*
12 + 21 +14 + 15 + 20 (+ 7) = 89.

Thus the correct answer is (B) 89

Current Year: Shevinshaw's Ltd Staff Numbers

	Marketing	Finance	Research	Sales	HR
Full-time employee	34	45	35	52	56
Part-time employee	12	21	14	15	20
Freelance employee	20	32	11	24	38

Shevinshaw's Ltd staff numbers by function

	Previous Year	*Next Year Projection*
Marketing	62	76
Finance	104	90
Research	74	72
Sales	82	94
HR	122	96

Q22 Which function is forecast to lose the same number of employees as it lost last year?

(A)) None of these
(B) Finance
(C)) Research
(D) Sales

The information that we need is shown in both the graph and the table Shevinshaw's Ltd Staff Numbers by Function.

Step 1 *- The total employee numbers for the current year need to be calculated, as follows (next year's projections are shown in brackets):*
Marketing = 20 + 12 + 34 = 66 (76)
Finance = 32 + 21 + 45 = 98 (90)
Research = 11 + 14 + 35 = 60 (72)
Sales = 24 + 15 + 52 = 91 (94)
HR = 38 + 20 + 56 = 114 (96)

Step 2 *- Comparing these to the previous year's employee numbers shown in the table, none of the functions is forecast to lose the same number of employees as it lost last year.*

Thus the correct answer is (A) None of these

Current Year: Shevinshaw's Ltd Staff Numbers

	Marketing	Finance	Research	Sales	HR
Full-time employee	34	45	35	52	56
Part-time employee	12	21	14	15	20
Freelance employee	20	32	11	24	38

Shevinshaw's Ltd staff numbers by function

	Previous Year	*Next Year Projection*
Marketing	62	76
Finance	104	90
Research	74	72
Sales	82	94
HR	122	96

Q23 Which function has the lowest ratio of full-time employees compared to part-time employees and freelance employees combined?

(A) Marketing
(B) Finance
(C)) Research
(D) HR

The information that we need is shown in the graph. The calculations for each function are shown in the table below:

	Marketing	*Finance*	*Research*	*Sales*	*HR*
Step 1 – *Full-time employees total*	*34*	*45*	*35*	*52*	*56*
Step 2 *- Part-time and freelance total*	*32*	*53*	*25*	*39*	*58*
Step 3 *- Full-time / Part-time and freelance total*	*1.06*	*0.84*	*1.4*	*1.33*	*0.97*

Thus the correct answer is (B) Finance

Current Year: Shevinshaw's Ltd Staff Numbers

	Marketing	Finance	Research	Sales	HR
Full-time employee	34	45	35	52	56
Part-time employee	12	21	14	15	20
Freelance employee	20	32	11	24	38

Shevinshaw's Ltd staff numbers by function

	Previous Year	*Next Year Projection*
Marketing	62	76
Finance	104	90
Research	74	72
Sales	82	94
HR	122	96

Q24 Which of the following statements is true?

(A)) Finance has the most employees
(B)) Total Sales employees outnumber total HR
(C)) Research has the most employees
(D) HR has the most freelance employees

The information that we need is shown in the table attached to the graph.

Step 1 *- Go through each option to test if it is true or false. Only the last option is true; HR has the highest number of freelance (38) and full-time employees (56).*

Thus the correct answer is (D) HR has the highest number of freelance and full-time employees

Current Year: Shevinshaw's Ltd Staff Numbers

	Marketing	Finance	Research	Sales	HR
Full-time employee	34	45	35	52	56
Part-time employee	12	21	14	15	20
Freelance employee	20	32	11	24	38

Shevinshaw's Ltd staff numbers by function

	Previous Year	*Next Year Projection*
Marketing	62	76
Finance	104	90
Research	74	72
Sales	82	94
HR	122	96

Q25 Weekend overtime is paid at a rate of double pay for Marketing and Research employees, with other employees receiving time and a half. Which function will work the second highest number of overtime hours – assuming that each employee works 8 days per year overtime – next year?

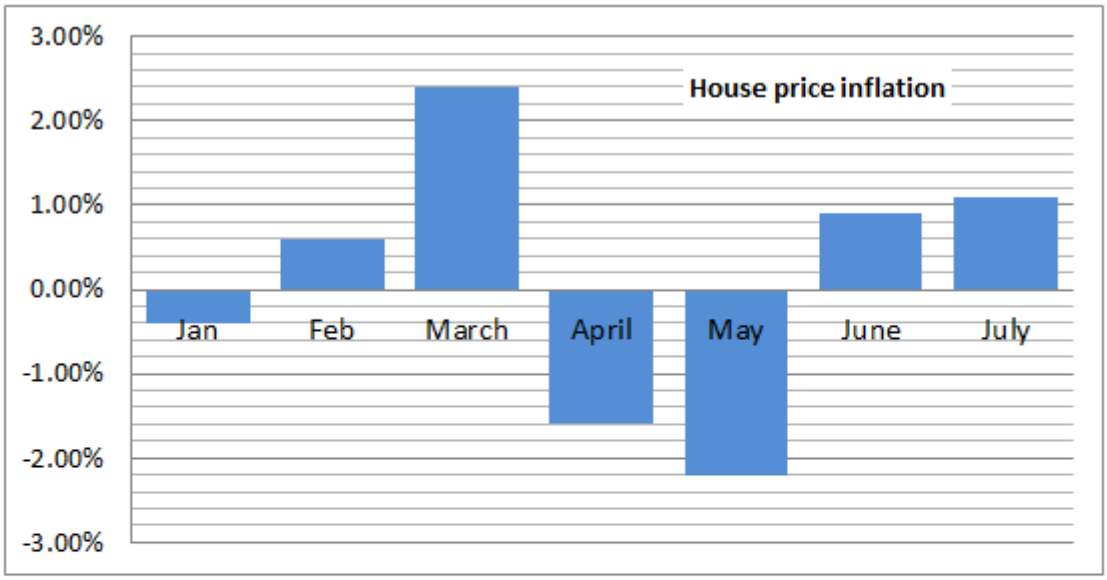
(A) Research
(B) Marketing
(C) Finance
(D) Sales

The information that we need is shown in the table Shevinshaw's Ltd Staff Numbers by Function.

Step 1 *- The number of days worked overtime each year is irrelevant since this is the same for each employee. Another distracter in the question is the overtime rate of pay. The question is actually asking for the department with the second highest number of employees. The table below shows the projected staff numbers for next year and the second highest number of employees is shown in bold;*

	Projection for next Year
Marketing	*76*
Finance	*90*
Research	*72*
Sales	*94*
HR	*96*

Thus the correct answer is (D) Sales



Property type	Average price (£) – end of June
Studio flat	£140,000
2-bedroom flat	£208,000
3-bedroom flat	£260,000
4-bedroom house	£365,000
5-bedroom house	£450,000

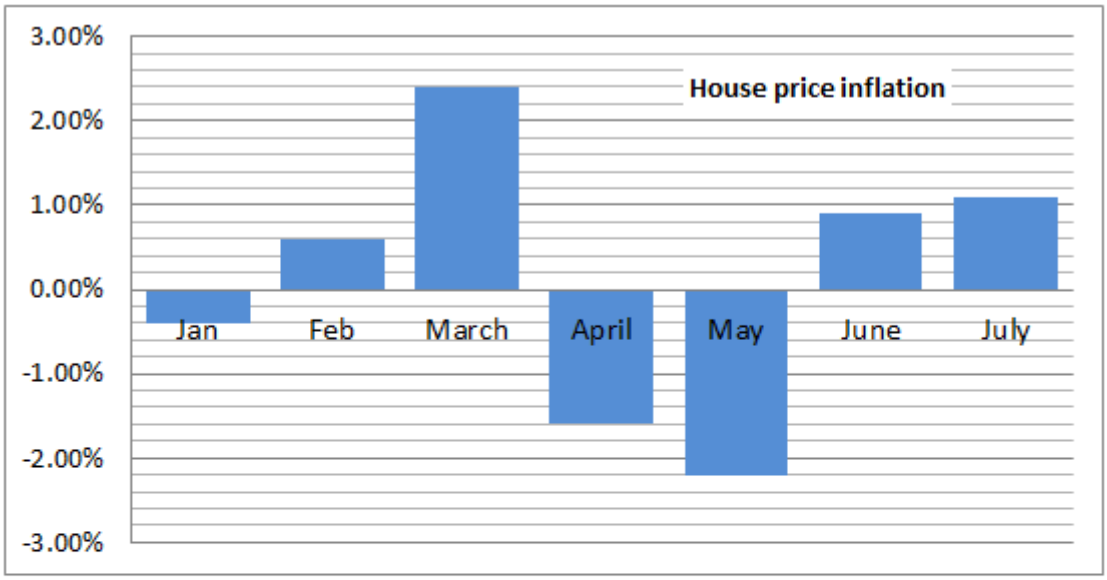
Q26 In which month shown did house prices change the most, and the least, respectively?

(A) March, May
(B) May, January
(C) May, March
(D) March, January

The information that we need is shown in the graph House price inflation.

Step 1 *- The most and the least changes in house price are shown by the highest (2.4% in March) and the lowest (0.4% in January) rates of inflation. This question can be done simply by inspection of the graph and is one of the easier questions.*

Thus the correct answer is (D) March, January



Property type	Average price (£) – end of June
Studio flat	£140,000
2-bedroom flat	£208,000
3-bedroom flat	£260,000
4-bedroom house	£365,000
5-bedroom house	£450,000

Q27 Which two property prices are in the ratio of 4:5?

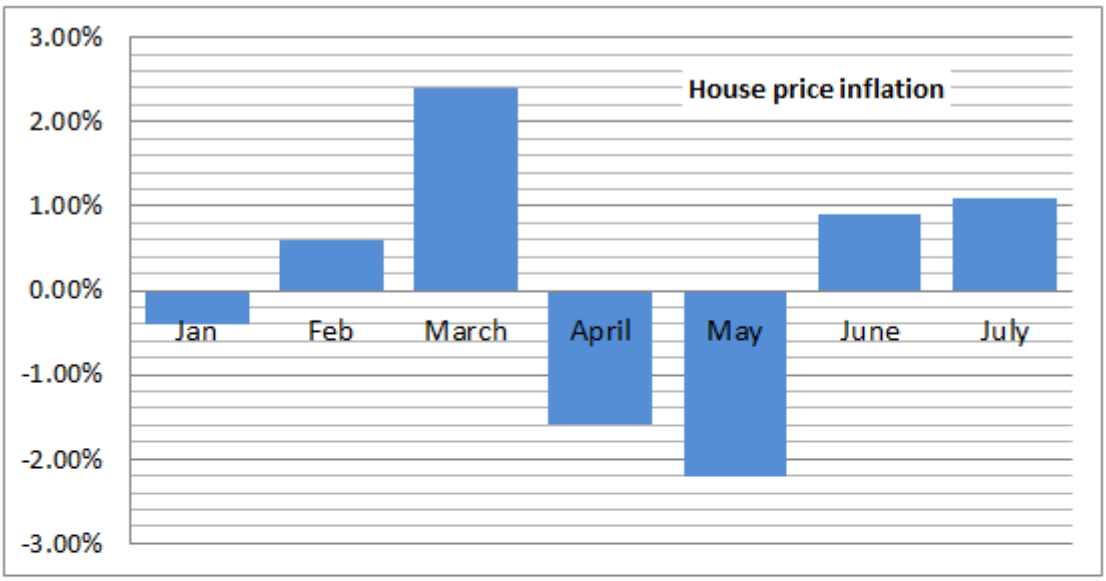
(A) 4-bedroom house: 3-bedroom flat
(B) 2-bedroom flat: studio flat
(C) Studio flat: 2-bedroom flat
(D)) 2-bedroom flat: 3-bedroom flat

The information that we need is shown in the Property type table.

Step 1 *- The 4:5 ratio needs to be tested on each of the prices given i.e. what the "other" property price would be if it was 4/5ths of the price (except the lowest price 2-bedroom flat).*

2-bedroom flat	*£208,000 x 4/5 =*	*£166,400*
3-bedroom flat	*£260,000 x 4/5 =*	*£208,000 = cost of 2-bedroom flat*
4-bedroom house	*£365,000 x 4/5 =*	*£292,000*
5-bedroom house	*£450,000 x 4/5 =*	*£360,000*

Thus the correct answer is (D) 2-bedroom flat: 3-bedroom flat



Property type	Average price (£) – end of June
Studio flat	£140,000
2-bedroom flat	£208,000
3-bedroom flat	£260,000
4-bedroom house	£365,000
5-bedroom house	£450,000

Q28 At the end of June, a property speculator buys three 2-bedroom flats at the average price and rents each one out at £900 profit per month. If she sells the properties eighteen months later with house prices having risen 15% since purchase, how much profit, before costs, has she made?

(A) £140,850
(B) £165,600
(C) £142,200
(D) £48,600

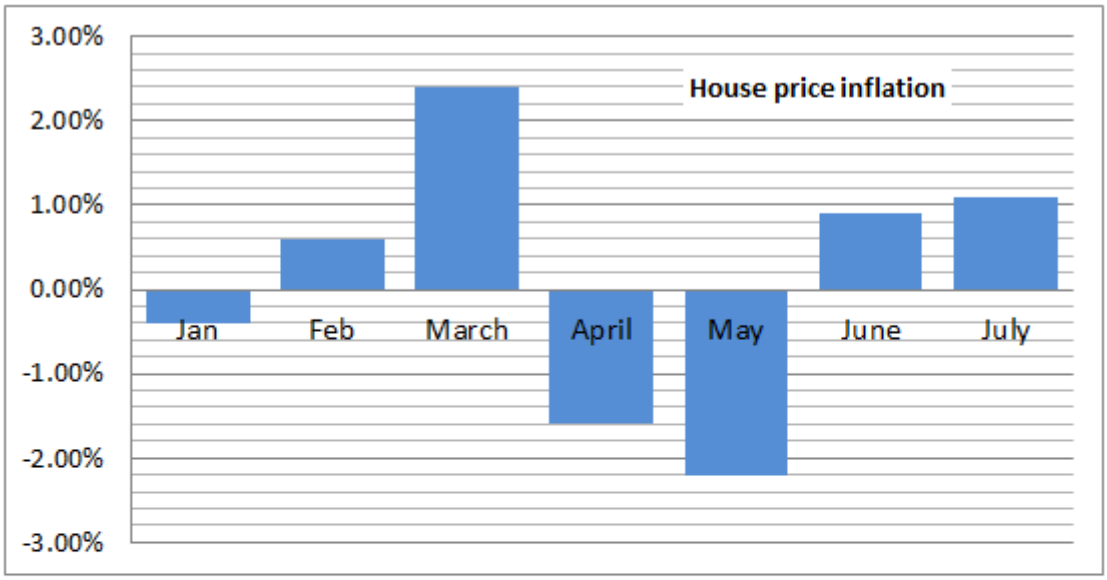
The information that we need is shown in the table Property type.

Step 1 *– Calculate the increase in property value*
£208,000 x 15/100 x 3 = £93,600

Step 2 *– Calculate the rental income*
£900 x 3 x 18 = £48,600

Step 3 *– Calculate the total profit*
£93,600 + £48,600 = £142,200

Thus the correct answer is (C) £142,200



Property type	Average price (£) – end of June
Studio flat	£140,000
2-bedroom flat	£208,000
3-bedroom flat	£260,000
4-bedroom house	£365,000
5-bedroom house	£450,000

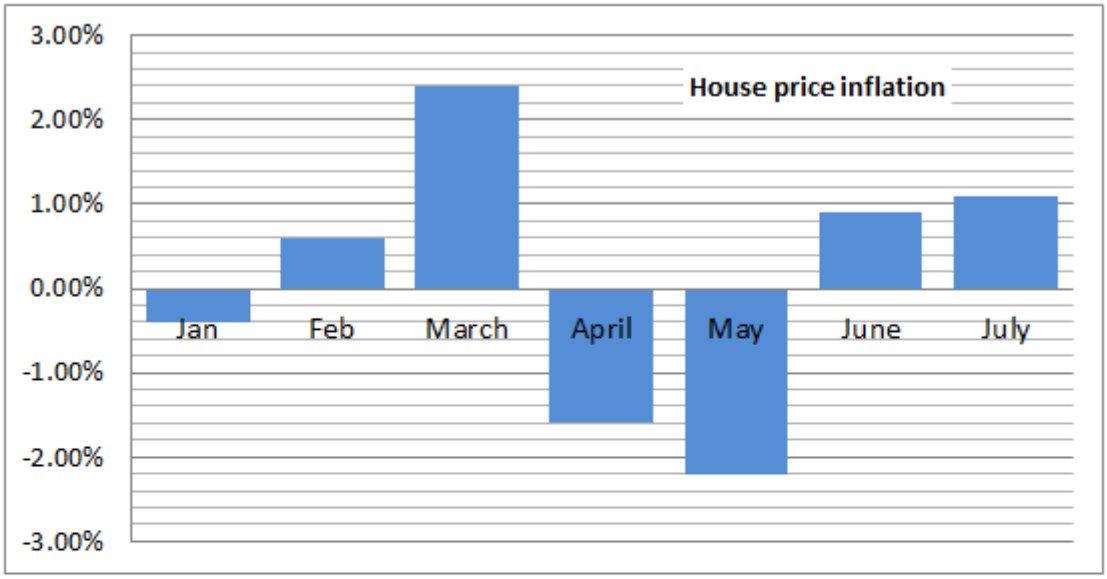
Q29 If the cost of a 4-bedroom house continues at the same monthly rate of inflation as July, what will the cost be at the end of October?

(A) £385,522
(B) £381,300
(C) £381,327
(D) £381,237

The information that we need is shown in both the graph and the table.

Step 1 *- Monthly rate of inflation (July) = 1.1% = Aug, Sept and Oct rate of inflation*
Calculate the monthly increase, as follows:
Price (end of June) = £365,000
Price (end of July) = £365,000 x 1.011 = £369,015
Price (end of August) = £369,015 x 1.011 = £373,074
Price (end of Sept) = £373,074 x 1.011 = £377,178
Price (end of Oct) = £377,178 x 1.011 = £381,327

Thus the correct answer is (C) £381,327



Property type	Average price (£) – end of June
Studio flat	£140,000
2-bedroom flat	£208,000
3-bedroom flat	£260,000
4-bedroom house	£365,000
5-bedroom house	£450,000

Q30 If a newly decorated studio flat was worth £141,400 at the start of the year, what was its value at the end of February?

(A) £141,679
(B) £142,000
(C) £140,834
(D) £139,679

The information that we need is shown in both the graph and the table.

Step 1 *- Price at the end of Jan = £141,400 decrease by 0.4% = £140,834*
Price at the end of Feb = £140,834 increase by 0.6% = £141,679.

Or you could just enter straight into your calculator:
141400 x (0.996) x (1.006) = 141679.4

Thus the correct answer is (A) £141,679

NUMERICAL REASONING TEST 9

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

	Sales (£millions)						
	US (Jan-June)	US (July-Dec)	Annual US Sales Target	EU (Jan-June)	EU (July-Dec)	Annual EU Sales Target	Worldwide Sales (Jan-Dec)
Product A	54.5	50.5	110	90.5	91.4	180	320
Product B	61.1	59.2	120	72.2	77.8	160	300
Product C	60.5	58	120	88	92.2	180	330
Product D	76.5	74.1	150	105.3	98.2	200	380
Product E	72.7	78.2	150	89.2	94.8	190	350

US annual sales tax: 24% on the first £130 million of sales, 0% thereafter.
EU annual sales tax: 22% on all sales.

Q1 If worldwide sales comprise US sales, EU sales and Far Eastern sales, which products had the highest annual Far Eastern Sales?

(A) Product A
(B) Product B
(C) Product C
(D) Product D
(E) Product E

Step 1 *- Sum the half-yearly US and the EU sales to get the annual sales for each product:*

	US annual sales	*EU annual sales*	*US annual sales + EU annual sales*
Product A	*105*	*181.9*	*286.9*
Product B	*120.3*	*150*	*270.3*
Product C	*118.5*	*180.2*	*298.7*
Product D	*150.6*	*203.5*	*354.1*
Product E	*150.9*	*184*	*334.9*

Step 2 *– Calculate Far Eastern sales for each product (= worldwide sales - US annual sales + EU annual sales)*

Product A	*320 - 286.9 = 33.1*
Product B	*300 - 270.3 = 29.7*
Product C	*330 - 298.7 = 31.3*
Product D	*380 - 354.1 = 25.9*
Product E	*350 - 334.9 = 15.1*

Tip: *in practice, when the time is ticking, you wouldn't bother writing down the sums; you'd just enter the numbers for each product straight into your calculator and write down the Far Eastern Sales. You're also less likely to make a data-entry mistake this way.*

Thus the correct answer is (A) Product A

	Sales (£millions)						
	US (Jan-June)	US (July-Dec)	Annual US Sales Target	EU (Jan-June)	EU (July-Dec)	Annual EU Sales Target	Worldwide Sales (Jan-Dec)
Product A	54.5	50.5	110	90.5	91.4	180	320
Product B	61.1	59.2	120	72.2	77.8	160	300
Product C	60.5	58	120	88	92.2	180	330
Product D	76.5	74.1	150	105.3	98.2	200	380
Product E	72.7	78.2	150	89.2	94.8	190	350

US annual sales tax: 24% on the first £130 million of sales, 0% thereafter.
EU annual sales tax: 22% on all sales.

Q2 For the five products combined there was a difference between total annual Sales and the total annual Sales Target. How did this difference compare for the US and the EU?

(A)) £27.1 million (US); £25.8 million (EU)
(B)) £638.3 million (US); £908.2 million (EU)
(C)) £4.7 million (US); £10.4 million (EU)
(D)) £271.7 million (US); £258.2 million (EU)
(E)) Can't tell

Step 1 *– Sum the Jan-June sales (US) and the July-Dec sales (US)*
325.3 + 320 = £645.3 million

Step 2 *– Calculate the difference compared to the US target (£650 million)*
650 –645.3 = £4.7 million

Step 3 *– Sum the Jan-June (European) and the July-Dec sales (EU)*
445.2 + 454.4 = £899.6 million

Step 4 *– Calculate the difference compared to the European target (£910 million)*
910 – 899.6 = £10.4 million

Tip *- In this question, it would have been possible to answer the question after working out just the US difference, but this is often not the case.*

Thus the correct answer is (C) £4.7 million (US); £10.4 million (EU)

	Sales (£millions)						
	US (Jan-June)	US (July-Dec)	Annual US Sales Target	EU (Jan-June)	EU (July-Dec)	Annual EU Sales Target	Worldwide Sales (Jan-Dec)
Product A	54.5	50.5	110	90.5	91.4	180	320
Product B	61.1	59.2	120	72.2	77.8	160	300
Product C	60.5	58	120	88	92.2	180	330
Product D	76.5	74.1	150	105.3	98.2	200	380
Product E	72.7	78.2	150	89.2	94.8	190	350

US annual sales tax: 24% on the first £130 million of sales, 0% thereafter.
EU annual sales tax: 22% on all sales.

Q3 If the annual EU sales for Products B and C both comprise online: offline sales in a ratio of 2:3 then what are the online EU sales for Products B and C combined?

(A) £198,120,000
(B) £19,812,000
(C) £13,208,000
(D) £132,080,000
(E) None of These

Step 1 *– Calculate the EU sales for Products B and C*
88.0 + 92.2 + 72.2 + 77.8 = 330.2 (£million)

Step 2 *– Use the ratio to find online sales.*
online: offline = 2:3
330.2 = 2x + 3x = 5x
x = 330.2/5 = 66.04
online sales = 2x = 132.08

Tip - *In practice it's quicker to just multiply 330.2 by (2/5) to obtain the ratio.*

Thus the correct answer is (D) £132,080,000

	Sales (£millions)						
	US (Jan-June)	US (July-Dec)	Annual US Sales Target	EU (Jan-June)	EU (July-Dec)	Annual EU Sales Target	Worldwide Sales (Jan-Dec)
Product A	54.5	50.5	110	90.5	91.4	180	320
Product B	61.1	59.2	120	72.2	77.8	160	300
Product C	60.5	58	120	88	92.2	180	330
Product D	76.5	74.1	150	105.3	98.2	200	380
Product E	72.7	78.2	150	89.2	94.8	190	350

US annual sales tax: 24% on the first £130 million of sales, 0% thereafter.
EU annual sales tax: 22% on all sales.

Q4 How much US and EU annual sales tax is due for Products B, C and D combined (to the nearest £million)?

(A) £244 million
(B) £211 million
(C) £149 million
(D) £243 million
(E) £120 million

Step 1 *- Calculate the US sales tax for Products B, C, D combined.*

	US annual sales	*US Sales tax on first £130 million*
Products B, C, D	*120.3 + 118.5 + 150.6 = 389.4*	*130 x 0.24 = 31.2 (£million)*
Total US sales tax = £31.2 million		

Step 2 *- Calculate the European sales tax*

	EU annual sales	*EU sales tax*
Products B, C, D	*150 + 180.2 + 203.5 = 533.7*	*533.7 x 0.22 = 117.414 (£million)*
Total EU sales tax = £117.414 million		

Step 3 *– Calculate the total sales tax*
31.2 + 117.414 = 148.614

Tip - *Notice as long as you check the US sales are over £130 million, you don't actually have to calculate the total because there is no tax on sales over £130 million.*

Thus the correct answer is (C) £149 million

	Sales (£millions)						
	US (Jan-June)	US (July-Dec)	Annual US Sales Target	EU (Jan-June)	EU (July-Dec)	Annual EU Sales Target	Worldwide Sales (Jan-Dec)
Product A	54.5	50.5	110	90.5	91.4	180	320
Product B	61.1	59.2	120	72.2	77.8	160	300
Product C	60.5	58	120	88	92.2	180	330
Product D	76.5	74.1	150	105.3	98.2	200	380
Product E	72.7	78.2	150	89.2	94.8	190	350

US annual sales tax: 24% on the first £130 million of sales, 0% thereafter.
EU annual sales tax: 22% on all sales.

Q5 Which of the following represents the smallest amount?

(A) Product B's change in EU sales between Jan-June and July-Dec
(B) 7% of Product D's US sales (Jan-June)
(C) Product E's change in US sales between Jan-June and July-Dec
(D) Average US Product A sales per month (July-Dec)
(E) Average US Product C sales per month (Jan-June)

Step 1 *- Calculate each figure as follows;*

77.8 – 72.2 = £5.6 million
76.5 x 0.07 = £5.355 million
78.2 – 72.7 = £5.5 million
50.5 / 6 = £8.42 million
60.5 / 6 = 10.08 million

Tip: *Remember to quickly re-scan the question because some people will put down the LARGEST value (E) not the SMALLEST (B).*

Thus the correct answer is (B) 7% of Product D's US sales (Jan-June)

Share	Dividend paid	Previous Day's Company Value*	Total Number of Company Shares	Current Price Per Share	Previous month's share price: Low	High
	(pence per Company Share)	*(£million)*	*(million)*	*(£)*	*(pence)*	*(pence)*
Relf plc	14	240	80	2.75	241	275
Studt Systems	8	171	55	3	238	352
Tombe	10	840	460	1.85	170	203
Xan Inc.	15	28	12	2.28	218	249
IWE Ltd	5	200	114	1.48	160	178

** Company Value = Price Per Share x Total Number of Company Shares*

Q6 A rights issue brings an additional 10% of Studt Systems shares to the market. If the current price per share drops by 8%, what is Studt Systems' new company value (to the nearest £million)?

(A) £166 million
(B) £167 million
(C) £16.6 million
(D) £1,670,000
(E) £169 million

Step 1 *– Calculate the new number of company shares*
55 x 110% = 60.5 million shares

Step 2 *– Calculate the new price*
300 x 92% = £2.76

Step 3 *– Calculate the Company Value*
£2.76 x 60.5 million = £166.98 million = £167 million (to the nearest million)

Thus the correct answer is (B) £167 million

Share	Dividend paid	Previous Day's Company Value*	Total Number of Company Shares	Current Price Per Share	Previous month's share price: Low	High
	(pence per Company Share)	*(£million)*	*(million)*	*(£)*	*(pence)*	*(pence)*
Relf plc	14	240	80	2.75	241	275
Studt Systems	8	171	55	3	238	352
Tombe	10	840	460	1.85	170	203
Xan Inc.	15	28	12	2.28	218	249
IWE Ltd	5	200	114	1.48	160	178

** Company Value = Price Per Share x Total Number of Company Shares*

Q7 At current prices, if the owner of 150,000 Studt Systems shares collected the dividend then sold the shares, how many Tombe shares could they buy with the proceeds (to the nearest 10,000)?

(A) 290,000
(B) 280,000
(C) 270,000
(D) 260,000
(E) 250,000

Step 1 *– Calculate the Company Share value including the dividend*
150,000 x (3.00 + 0.08) = £462,000

Step 2 *– Calculate the number of Tombe shares*
462,000/1.85 = 249,730

Thus the correct answer is (E) 250,000

Share	Dividend paid (pence per Company Share)	Previous Day's Company Value* (£million)	Total Number of Company Shares (million)	Current Price Per Share (£)	Previous month's share price: Low (pence)	High (pence)
Relf plc	14	240	80	2.75	241	275
Studt Systems	8	171	55	3	238	352
Tombe	10	840	460	1.85	170	203
Xan Inc.	15	28	12	2.28	218	249
IWE Ltd	5	200	114	1.48	160	178

** Company Value = Price Per Share x Total Number of Company Shares*

Q8 Which share has changed in price by the largest amount since the previous day?

(A) Relf plc
(B) Studt Systems
(C) Xan Inc
(D) IWE Ltd
(E) Cannot Say

Step 1 *– Calculate the Previous Day's Price for each share listed as an answer option.*
Previous Day's Price = Previous Day's Company Value / Total number of Company Shares.

Relf plc= 240 / 80 = £3.00
Studt Systems = 171 / 55 = £3.11
Xan Inc. = 28 / 12 = £2.33
IWE Ltd = 200 / 114 = £1.75

Step 2 *– Calculate the difference with the Current price for each share, as follows;*
Relf plc = 3.00 - 2.75 = 0.25
Studt Systems = 3.11 – 3.00 = 0.11
Xan Inc. = 2.33 - 2.28 = 0.05
IWE Ltd = 1.75 - 1.48 = 0.27

Thus the correct answer is (D) IWE Ltd

Share	Dividend paid (pence per Company Share)	Previous Day's Company Value* (£million)	Total Number of Company Shares (million)	Current Price Per Share (£)	Previous month's share price: Low (pence)	High (pence)
Relf plc	14	240	80	2.75	241	275
Studt Systems	8	171	55	3	238	352
Tombe	10	840	460	1.85	170	203
Xan Inc.	15	28	12	2.28	218	249
IWE Ltd	5	200	114	1.48	160	178

** Company Value = Price Per Share x Total Number of Company Shares*

Q9 A day trader bought 50,000 Tombe shares at last month's low, received the Tombe dividend and then sold all these shares at last month's high. What was the approximate percentage gain or loss?

(A) 25.3%profit
(B) 19.4%profit
(C) 25.3% loss
(D) 20.5%loss
(E) 20.5% profit

Step 1 *– Calculate the cost to buy the shares*
50,000 x £1.70 = £85,000

Step 2 *– Calculate the profit from the change in share price*
£2.03 x 50,000 = £101,500
£101,500 - £85,000 = £16,500

Step 3 *– Add the dividend*
£16,500 + (0.10 x 50,000) = £21,500

Step 4 *– Calculate the %*
21,500/85,000 = 25.3%

Tip: *notice that one of the multiple choice options is the answer if you forgot to add the dividend (19.4% profit). This is called a distractor.*

Thus the correct answer is (A) 25.3% profit

Share	Dividend paid (pence per Company Share)	Previous Day's Company Value* (£million)	Total Number of Company Shares (million)	Current Price Per Share (£)	Previous month's share price: Low (pence)	High (pence)
Relf plc	14	240	80	2.75	241	275
Studt Systems	8	171	55	3	238	352
Tombe	10	840	460	1.85	170	203
Xan Inc.	15	28	12	2.28	218	249
IWE Ltd	5	200	114	1.48	160	178

** Company Value = Price Per Share x Total Number of Company Shares*

Q10 A trader has £185,000 to invest and decides to invest this money equally across the 5 shares shown. How many Tombe and IWE Ltd shares does the trader purchase at current prices?

(A) 2,000 Tombe shares; 2,250 IWE Ltd shares
(B) 20,000 Tombe shares; 225 IWE Ltd shares
(C) 20,000 Tombe shares; 25,000 IWE Ltd shares
(D) 2,000 Tombe shares; 225,000 IWE Ltd shares
(E) None of these

Step 1 *– Calculate the amount invested per share*
£185,000/5 = £37,000

Step 2 *– Calculate the number of Tombe shares*
37,000/1.85 =20,000

Step 3 *– Calculate the number of IWE Ltd shares*
37 000/1.48 = 25,000

Thus the correct answer is (C) 20,000 Tombe shares; 25,000 IWE Ltd shares

	Number of new mobile phone packages sold *(over the previous 12 months)*			
IK-Connections Ltd	Platinum	Gold	Silver	Bronze
Central Region stores	4,540	4,854	5,083	5,425
Northern Region stores	4,725	5,005	5,382	5,846
Southern Region stores	4,584	5,123	5,759	5,428
Western Region stores	4,682	4,759	4,956	4,869
Eastern Region stores	4,884	5,256	4,982	4,592
Price of package *(per month)*	£40	£35	£30	£25

Q11 Which regional store sold the second highest number of new mobile phone contracts for the Platinum and Gold packages combined (over the previous 12 months)?

(A) Central
(B) Northern
(C) Southern
(D) Eastern
(E) Western

Step 1 *- Calculate the combined Platinum and Gold packages for each of IK-Connections Ltd's regional stores:*

Platinum package	*Gold package*	*Total*
4,540	*4,854*	*9,394*
4,725	*5,005*	*9,730*
4,584	*5,123*	*9,707*
4,682	*4,759*	*9,441*
4,884	*5,256*	*10,140*

Thus the correct answer is (B) Northern

	Number of new mobile phone packages sold *(over the previous 12 months)*			
IK-Connections Ltd	Platinum	Gold	Silver	Bronze
Central Region stores	4,540	4,854	5,083	5,425
Northern Region stores	4,725	5,005	5,382	5,846
Southern Region stores	4,584	5,123	5,759	5,428
Western Region stores	4,682	4,759	4,956	4,869
Eastern Region stores	4,884	5,256	4,982	4,592
Price of package *(per month)*	£40	£35	£30	£25

Q12 If the price of each package was a one-off payment and not a monthly charge, what would be the difference in revenue between the package with the lowest number of sales and the package with the highest number of sales over the 12 month period, across all regions combined?

(A) £151,740
(B) £101,750
(C) £15,400
(D) £5,747
(E) Cannot Say

Step 1 *– Find the highest selling and the lowest selling number of new mobile phone contracts by totaling sales across all 5 regional stores for each package*

	Platinum package	*Gold package*	*Silver package*	*Bronze package*
Central	*4,540*	*4,854*	*5,083*	*5,425*
Northern	*4,725*	*5,005*	*5,382*	*5,846*
Southern	*4,584*	*5,123*	*5,759*	*5,428*
Western	*4,682*	*4,759*	*4,956*	*4,869*
Eastern	*4,884*	*5,256*	*4,982*	*4,592*
TOTAL	*23,415*	*24,997*	*26,162*	*26,160*

Step 2 *– Calculate the difference in sale values between the Silver and Platinum packages*
Silver package = 26,162 x £30 = £784,860
Platinum package = 23,415 x £40 = £936,600
Difference = £936,600 - £784,860 = £151,740

Thus the correct answer is (A) £151,740

	Number of new mobile phone packages sold *(over the previous 12 months)*			
IK-Connections Ltd	Platinum	Gold	Silver	Bronze
Central Region stores	4,540	4,854	5,083	5,425
Northern Region stores	4,725	5,005	5,382	5,846
Southern Region stores	4,584	5,123	5,759	5,428
Western Region stores	4,682	4,759	4,956	4,869
Eastern Region stores	4,884	5,256	4,982	4,592
Price of package *(per month)*	£40	£35	£30	£25

Q13 What is the difference in average monthly sale values between the most and the least expensive packages? Referring to the initial cost of the package only and not subsequent monthly payments.

(A) £1,850
(B) £2,745
(C) £23,550
(D) £27,450
(E) Cannot Say

Step 1 *– The table shows the most (£40 per month) and least expensive packages (£25 per month)*

Step 2 *– Calculate the difference in monthly average monthly packages sold*

	Platinum package	*Bronze package*
Central	*4,540*	*5,425*
Northern	*4,725*	*5,846*
Southern	*4,584*	*5,428*
Western	*4,682*	*4,869*
Eastern	*4,884*	*4,592*
ANNUAL TOTAL	*23,415*	*26,160*
MONTHLY AVERAGE	*1951.25*	*2180*
VALUE	*1951.25 x £40 = £78,050*	*2180 x £25 = £54,500*

Difference = £78,050 - £54,500 = £23,550

Thus the correct answer is (C) £23,550

	Number of new mobile phone packages sold *(over the previous 12 months)*			
IK-Connections Ltd	Platinum	Gold	Silver	Bronze
Central Region stores	4,540	4,854	5,083	5,425
Northern Region stores	4,725	5,005	5,382	5,846
Southern Region stores	4,584	5,123	5,759	5,428
Western Region stores	4,682	4,759	4,956	4,869
Eastern Region stores	4,884	5,256	4,982	4,592
Price of package *(per month)*	£40	£35	£30	£25

Q14 Assuming the only costs are those of the monthly package, what was the annual cost saving for a customer who switched from the Gold to the Bronze package?

(A) £10
(B) £50
(C) £75
(D) £120
(E) £180

This is a relatively easy one.
Step 1 *– Calculate the monthly difference*
£35 - £25 = £10

Step 2 *– Calculate the annual difference*
£10 x 12 = £120

Thus the correct answer is (D) £120

	Number of new mobile phone packages sold *(over the previous 12 months)*			
IK-Connections Ltd	Platinum	Gold	Silver	Bronze
Central Region stores	4,540	4,854	5,083	5,425
Northern Region stores	4,725	5,005	5,382	5,846
Southern Region stores	4,584	5,123	5,759	5,428
Western Region stores	4,682	4,759	4,956	4,869
Eastern Region stores	4,884	5,256	4,982	4,592
Price of package *(per month)*	£40	£35	£30	£25

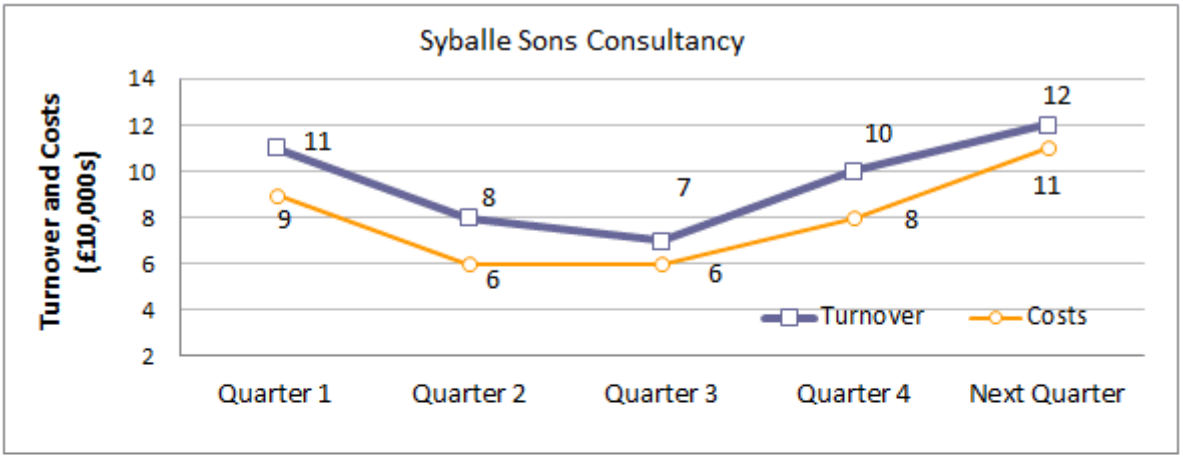
Q15 Over the next twelve months the number of Bronze package sales increases by 12.5% and 25% for the Eastern and Southern regional stores respectively, whilst other sales remain the same. What are the total Bronze package sales for the next twelve months across all IK-Connections stores?

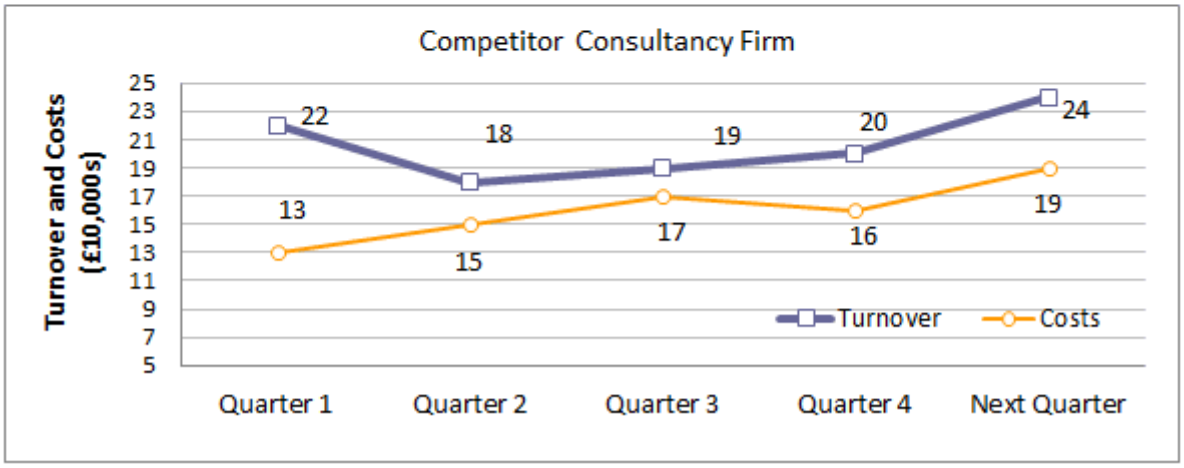
(A) 28,091
(B) 28,951
(C) 30,091
(D) 31,951
(E) 30,020

Step 1 *– Calculate the increase for the Eastern and Southern regional stores, then add the number of packages sold for the other 3 regional stores, as shown below;*

	Original Bronze package	*Increase*	*New Value*
Central			*5,425*
Northern			*5,846*
Southern	*5,428*	*5,428 x 125% = 6,785*	*6,785*
Western			*4,869*
Eastern	*4,592*	*4,592 x 112.5% = 5,166*	*5,166*
			Total = 28,091

Thus the correct answer is (A) 28,091





Q16 What is the average quarterly turnover for Syballe Sons compared to the Competitor Consultancy Firm across Quarters 1-4?

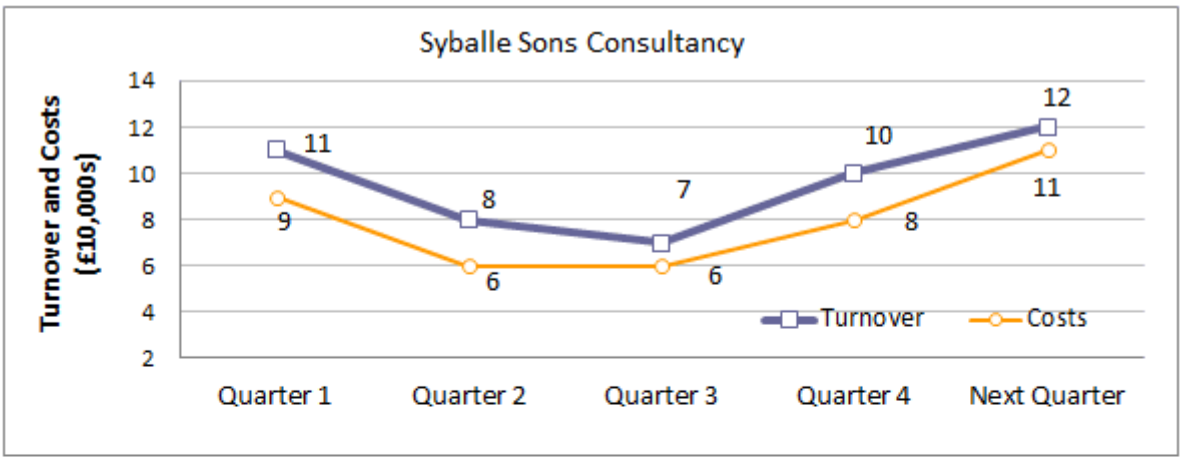
(A) £90,000 Syballe Sons; £197,500 Competitor Consultancy Firm
(B) £96,000 Syballe Sons; £200,000 Competitor Consultancy Firm
(C) £90,000 Syballe Sons; £25,750 Competitor Consultancy Firm
(D) £90,000 Syballe Sons; £19,750 Competitor Consultancy Firm
(E) £96,000 Syballe & Sons; £20,000 Competitor Consultancy Firm

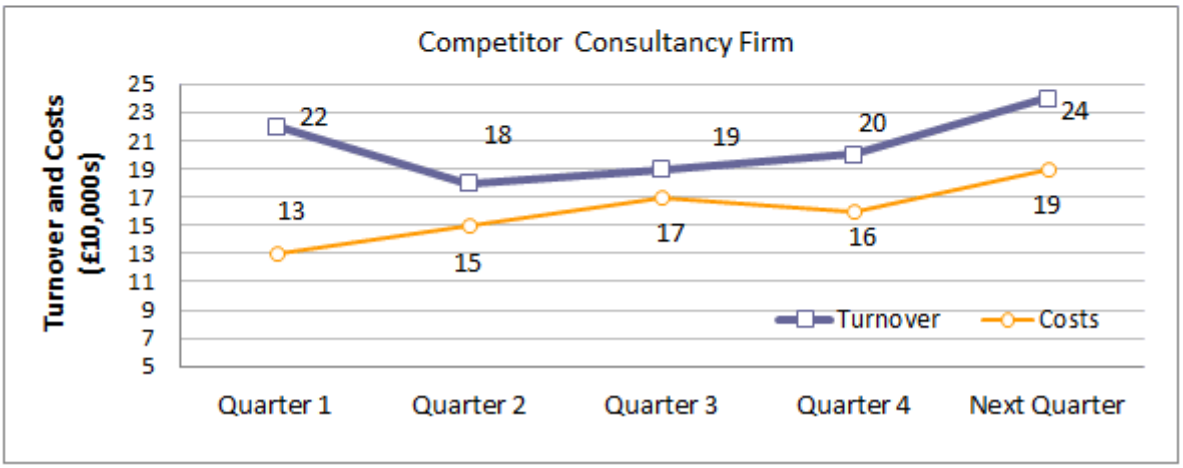
Step 1 *– Calculate the average turnover for Syballe Sons*
(11 + 8 + 7 + 10)/4 = £90,000

Step 1 *– Calculate the average turnover for the Competitor Consultancy Firm*
(22 + 18 + 19 + 20)/4 = £197,500

Thus the correct answer is (A) £90,000 Syballe Sons; £197,500 Competitor Consultancy Firm

Tip*: be careful not to include data for Next Quarter, as the question asked for just Q1-4.*





Q17 Between which two quarters was there the same percentage change in turnover for both Syballe Sons and the Competitor Consultancy Firm?

(A) Quarter 1 – Quarter 2
(B) Quarter 2 – Quarter 3
(C) Quarter 3 – Quarter 4
(D) Quarter 4 – Next Quarter
(E) Cannot Say

Step 1 *- Calculate the % change for each quarter for Syballe Sons and the Competitor Consultancy Firm*

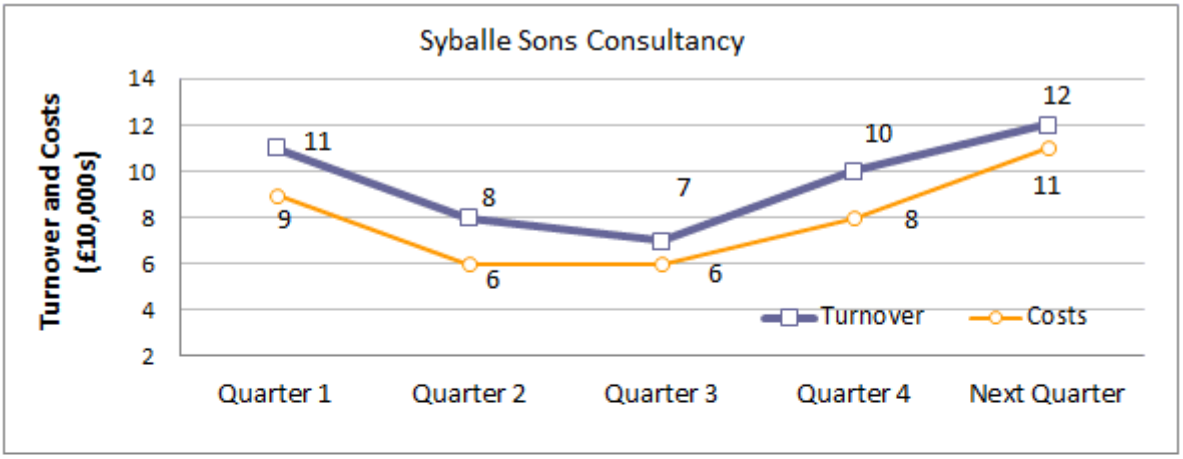
	% change for each quarter
Quarter 1 – Quarter 2	*(11-8)/11 = 27.3%*
Quarter 2 – Quarter 3	*(8-7)/8 = 12.5%*
Quarter 3 – Quarter 4	*(7-10)/7 = 42.9%*
Quarter 4 – Next Quarter	*(10-12)/10 = 20%*

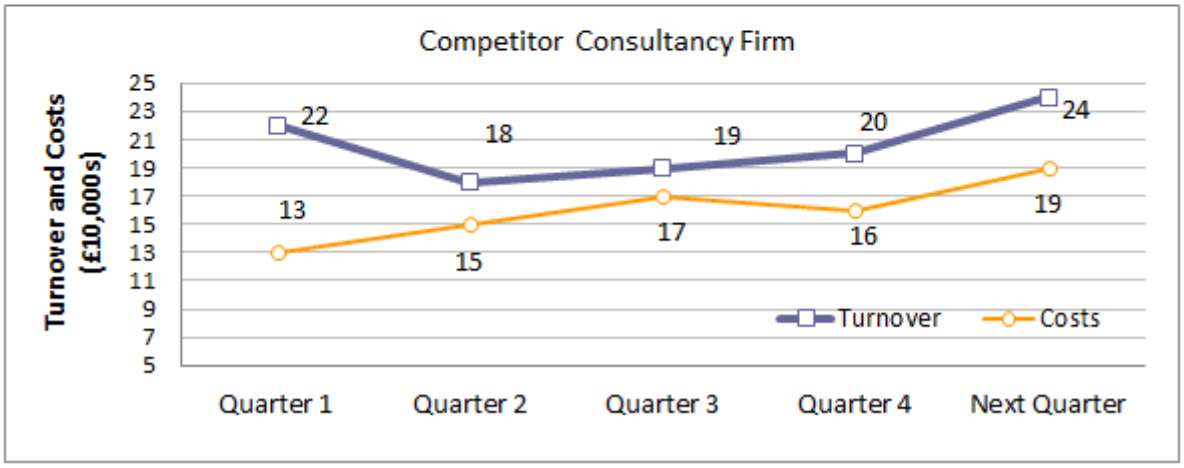
Step 2 *- Calculate the % increase for each quarter for the Competitor Consultancy Firm*

Quarter 1 – Quarter 2	*(22-18)/22 = 18.2%*
Quarter 2 – Quarter 3	*(18-19)/18 = 5.6%*
Quarter 3 – Quarter 4	*(19-20)/19 = 5.3%*
Quarter 4 – Next Quarter	*(24-20)/20 = 20%*

***Tip**: In practice, the fastest way would be to enter into your calculator 8 ÷ 11 (Syballe's Q1-Q2 turnover), and see if the value on the screen changes when you enter 18 ÷ 22 (Competitor's Q1-Q2 turnover). Repeat for each quarter, and you get to Q4-Next Quarter.*

Thus the correct answer is (D) Quarter 4 – Next Quarter





Q18 The quarter immediately following the period shown will see Syballe Sons' cost and turnover both increase by the same absolute amounts as between Quarter 4 and Next Quarter. What will be the difference between their turnover and costs in that following quarter?

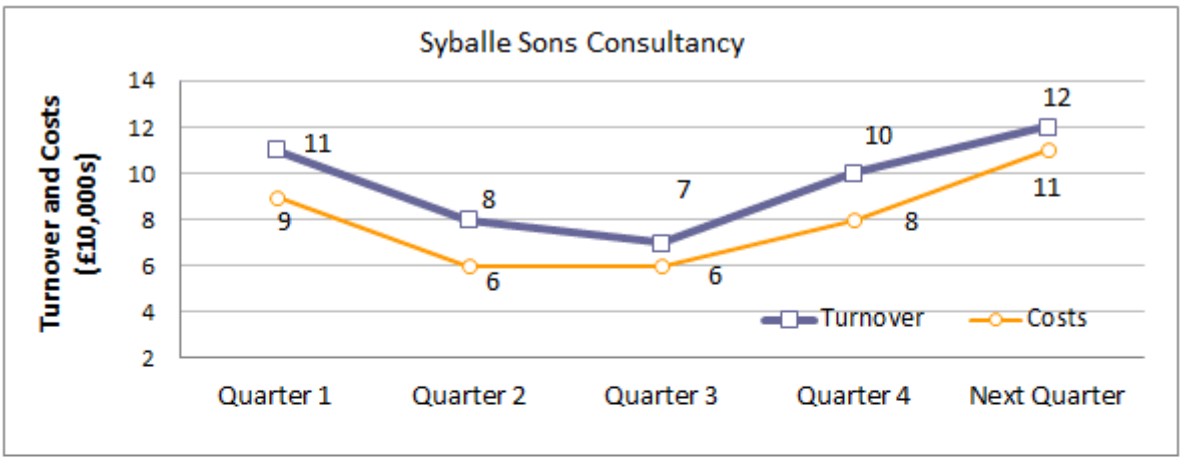
(A) No difference
(B) £1,500
(C) £1,000
(D) £500
(E) £2,000

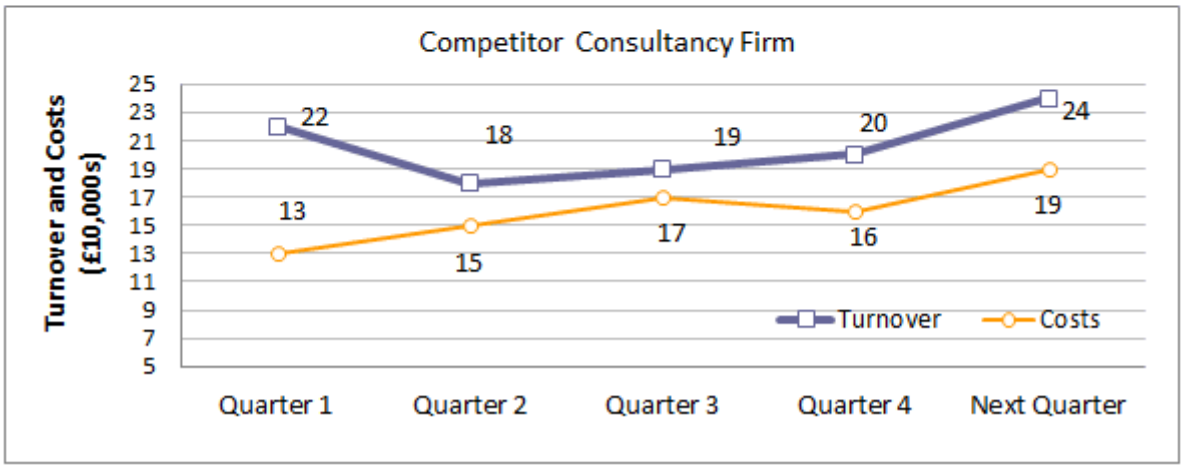
In £10,000s we have:

Step 1 *– Turnover increases by 2, costs increase by 3.*

Step 2 *– Add these to the last data shown in the graph and we have turnover of 2 + 12 = 14 and costs of 3 + 11 = 14.*

Thus the correct answer is (A) No difference





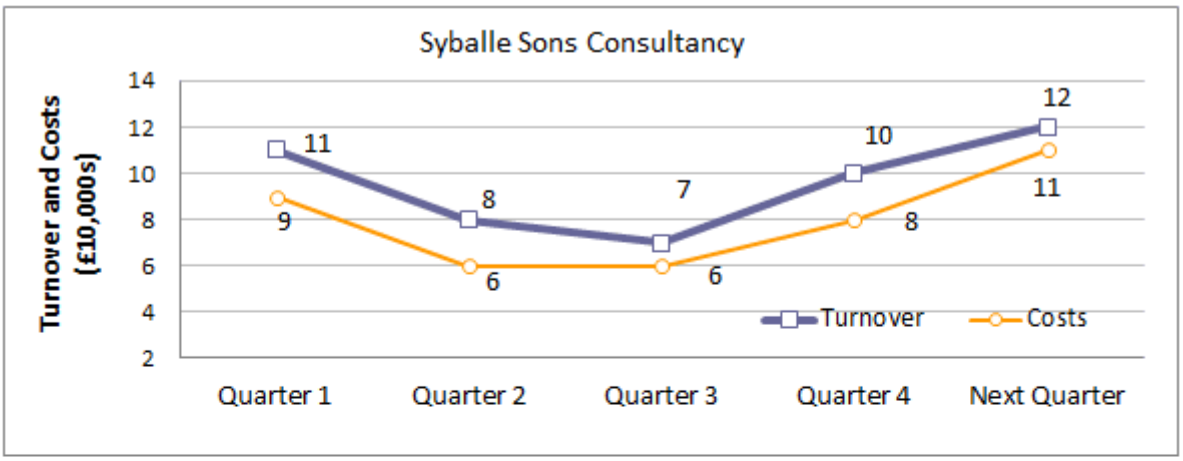
Q19 In the Next Quarter a new competitor enters the market and takes 1/10th of Syballe Sons' turnover, as well as 1/8th of the Competitor Consultancy's turnover. What is the turnover for this new competitor in the Next Quarter?

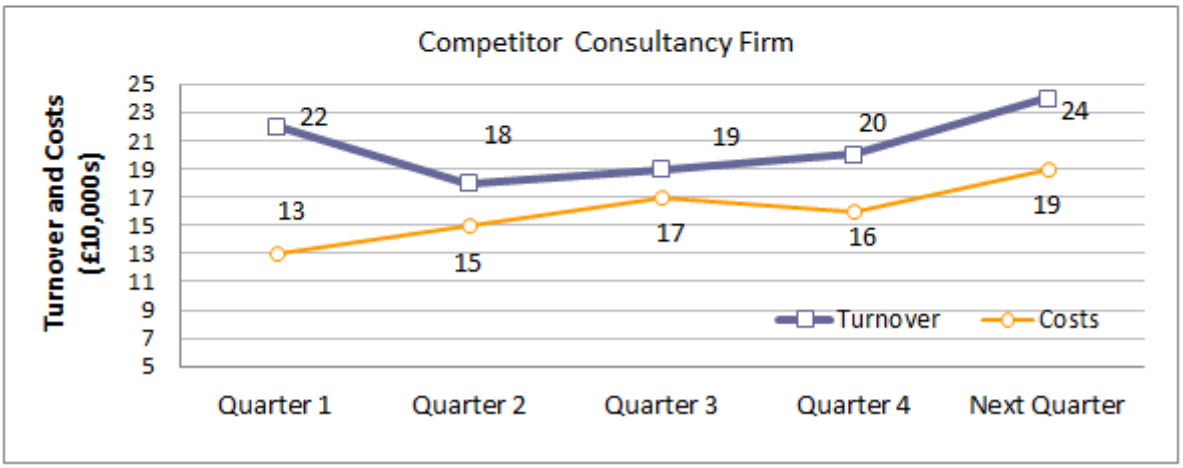
(A) £14,000
(B) £16,000
(C) £42,000
(D) £168,000
(E) £179,000

Step 1 *– Add 1/10th of Syballe Sons turnover to 1/8th of their Competitor Consultancy's turnover*
(12 x 1/10th) + (24 x 1/8th) = 1.2 + 3 = 4.2

Step 2 *– Convert to £10,000s*

Thus the correct answer is (C) £42,000





Q20 If Gross Profit is Turnover minus Costs, what was the absolute difference in the Gross Profit between Syballe Sons and the Competitor Consultancy Firm for Quarters 1-4 inclusive?

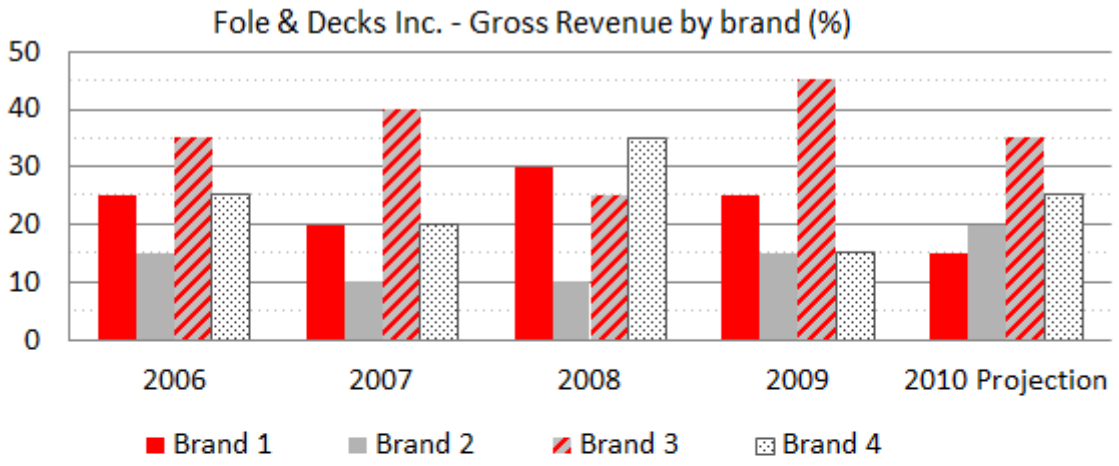
(A) Can't Tell
(B) £110,000
(C) £147,000
(D) £47,000
(E) £11,000

Step 1 *– Calculate the Gross Profit for Syballe Sons for Quarters 1-4*
(11 + 8 + 7 + 10) – (9 + 6 + 6 + 8) = 7 = £70,000

Step 2 *– Calculate the Gross Profit for the Competitor Consultancy Firm*
(22 + 18 + 19 + 20) – (13 + 15 + 17 + 16) = 18 = £180,000

Step 3 *– Calculate the difference*
£70,000 - £180,000 = £110,000 less

Thus the correct answer is (B) £110,000



	Total Gross Revenue * (£million)	Pre-Tax Profit (£million)	Earnings per share (pence)
2006	40	8.5	85
2007	42.7	8.7	104.7
2008	44.4	9	120
2009	50	9.6	120.3
2010 Projection	48.7	10.1	119.8

**Total Gross Revenue = Gross Revenue (Brand 1 + Brand 2 + Brand 3 + Brand 4)*

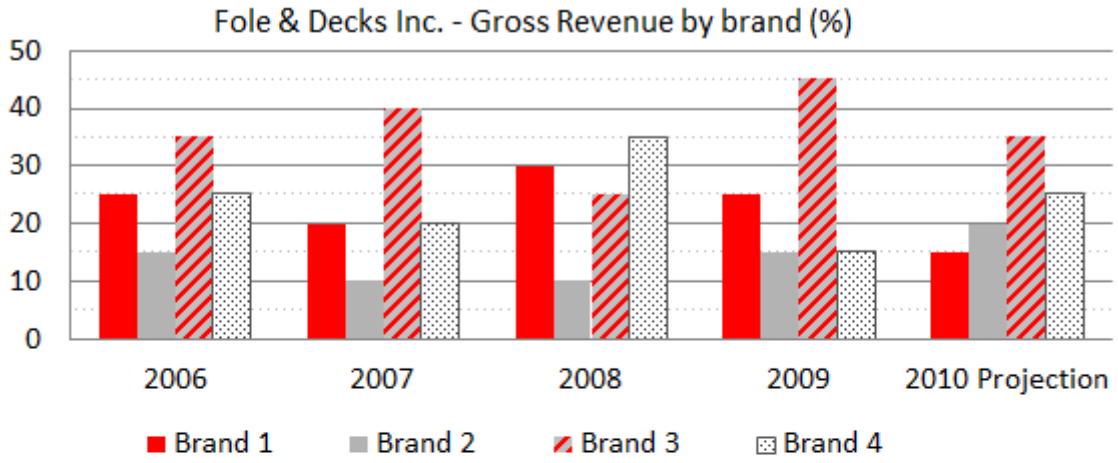
Q21 What was Brand 2's gross revenue in 2008?

(A) £10,000,000
(B) £4,440,000
(C) £44,400,000
(D) £9,100,000
(E) £100,000,000

Step 1 *– Refer to the table to obtain the Total Gross Revenue for 2008 (£44.4 million). Then refer to the graph to obtain the % of this figure that relates to Brand 2*

Step 2 *– Calculate Brand 2's gross revenue in 2008*
£44.4 million x 10% = £4.44 million = £4,440,000

Thus the correct answer is (B) £4,440,000



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2008	44.4	9	120
2009	50	9.6	120.3
2010 Projection	48.7	10.1	119.8

**Total Gross Revenue = Gross Revenue (Brand 1 + Brand 2 + Brand 3 + Brand 4)*

Q22 Which Brand's gross revenue has increased in value by the largest amount between 2006 and 2008?

(A) Brand 1
(B) Brand 2
(C) Brand 3
(D) Brand 4
(E) Cannot Say

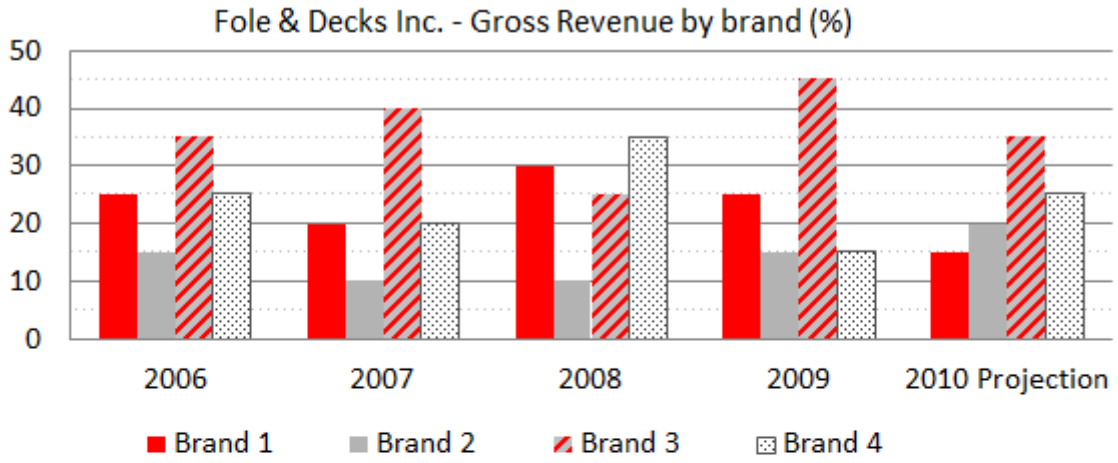
Step 1 *- Calculate the Gross Revenue for each Brand in 2006 and 2008. In millions we have:*

	Brand 1	*Brand 2*	*Brand 3*	*Brand 4*
2006	*40 x 25% = 10*	*40 x 15% = 6*	*40 x 35% = 14*	*40 x 25% = 10*
2008	*44.4 x 30% =13.32*	*44.4 x 10% = 4.44*	*44.4 x 25% = 11.1*	*44.4 x 35% = 15.54*

Step 2 *- Calculate the change in Gross Revenue for each Brand in 2007-2009*

	Brand 1	Brand 2	Brand 3	Brand 4
2006-2008	3.32 increase	1.56 decrease	2.9 decrease	5.54 increase

Thus the correct answer is (D) Brand 4



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2006	40	8.5	85
2007	42.7	8.7	104.7
2008	44.4	9	120
2009	50	9.6	120.3
2010 Projection	48.7	10.1	119.8

**Total Gross Revenue = Gross Revenue (Brand 1 + Brand 2 + Brand 3 + Brand 4)*

Q23 If Earnings per share = Pre-tax profit / Number of shares issued, how many shares were issued in 2008 compared to 2006?

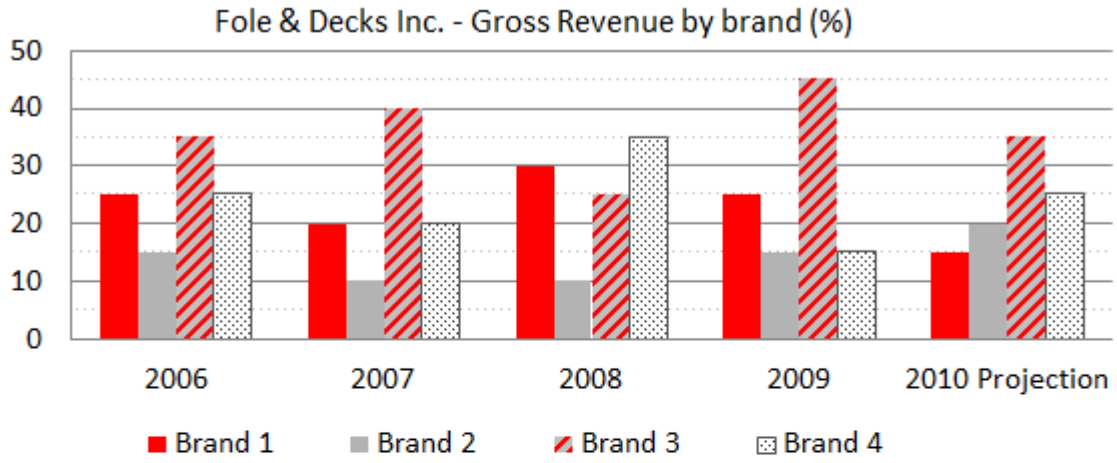
(A) 2,500,000 less
(B) 2,250,000 less
(C) 25,000 more
(D) 2,500,000 more
(E) 250,000 less

Step 1 *– Calculate the Number of shares issued in 2008*
Earnings per share = Pre-tax profit / Number of shares issued
1.2 = 9,000,000 / Number of shares issued
Number of shares issued = 9,000,000 / 1.2 = 7,500,000

Step 2 *– Calculate the Number of shares issued in 2006*
0.85 = 8,500,000 / Number of shares issued
Number of shares issued = 8,500,000 / 0.85 = 10,000,000

Step 3 *– Calculate the difference*
7,500,000 - 10,000,000 = 2,500,000 less

Thus the correct answer is (A) 2,500,000 less



	Total Gross Revenue * (£million)	Pre-Tax Profit (£million)	Earnings per share (pence)
2006	40	8.5	85
2007	42.7	8.7	104.7
2008	44.4	9	120
2009	50	9.6	120.3
2010 Projection	48.7	10.1	119.8

**Total Gross Revenue = Gross Revenue (Brand 1 + Brand 2 + Brand 3 + Brand 4)*

Q24 For the average annual pre-tax profit (for the years 2007-2009) to equal the average annual pre-tax profit (for the years 2007-2010), what must be the new 2010 Projection?

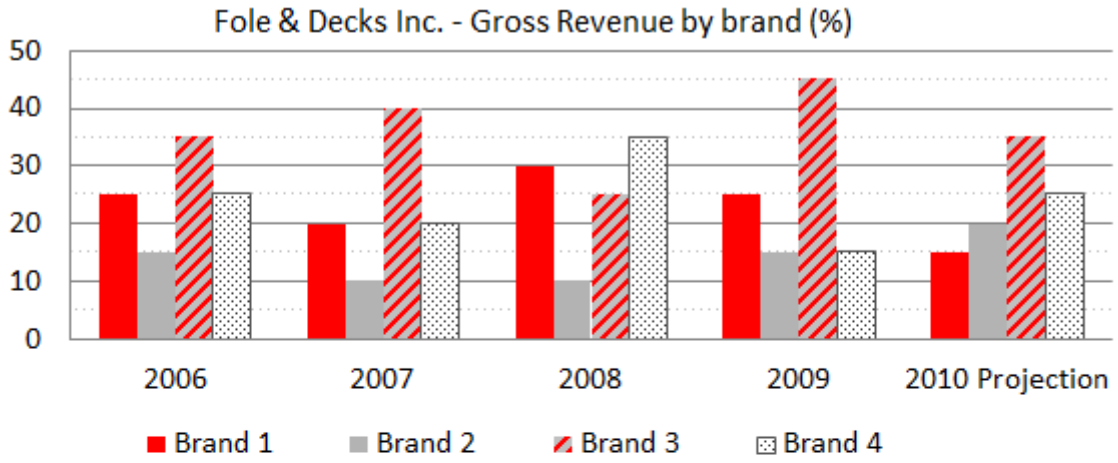
(A) £895,000
(B) £910,000
(C) £1,150,000
(D) £8,950,000
(E) £9,100,000

Step 1 *– Calculate the average annual Pre-tax profit between 2007-2009*
(8.7 + 9.0 + 9.6)/3 = 9.1

Step 2 *– Create an equation where X = 2010 Projection and the average annual pre-tax profit (2007-2010) = 9.1*

Step 3 *– 9.1 = (X + 8.7 + 9.0 + 9.6)/4*
X = (9.1 x 4) - 8.7 - 9.0 - 9.6 = 9.1 million

Thus the correct answer is (E) £9,100,000



	Total Gross Revenue * (£million)	Pre-Tax Profit (£million)	Earnings per share (pence)
2006	40	8.5	85
2007	42.7	8.7	104.7
2008	44.4	9	120
2009	50	9.6	120.3
2010 Projection	48.7	10.1	119.8

**Total Gross Revenue = Gross Revenue (Brand 1 + Brand 2 + Brand 3 + Brand 4)*

Q25 In which year was pre-tax profit less than 20% of total gross revenue?

(A) 2006
(B) 2007
(C) 2008
(D) 2009
(E) None of these

Step 1 *- Calculate the % of pre-tax profit for each year;*

	Total Gross Revenue	*Pre-Tax Profit*	*Pre-Tax profit/total gross revenue*
2006	*40*	*8.5*	*21.25%*
2007	*42.7*	*8.7*	*20.4%*
2008	*44.4*	*9.0*	*20.3%*
2009	*50*	*9.6*	*19.2%*

Thus the correct answer is (D) 2009

	Average Earnings (Euros per head of the working population)	Male Population (millions)	Female Population (millions)	Working Population (% of total population)
Netherlands	34,000	8.9	9.1	55
Germany	29,000	39.8	40.2	50
France	30,000	31.1	31.4	48
Spain	25,000	24.2	23.8	45
UK	33,000	27.9	28.1	52

Q26 What are the total earnings for the working population in Spain?

(A) 54 million Euros
(B) 540 billion Euros
(C) 540 million Euros
(D) 54 billion Euros
(E) Cannot Say

Step 1 *– Calculate the total Spanish population by adding the male and female population*
24.2 + 23.8 = 48 million

Step 2 *- Calculate the total working Spanish population*
48 million x 45% = 21.6 million

Step 3 *– Calculate the total earnings for the working population in Spain*
Average Earnings (Euros per head of the population) = 25,000
25,000 x 21.6 million = 540 billion Euros

Thus the correct answer is (B) 540 billion Euros

	Average Earnings (Euros per head of the working population)	Male Population (millions)	Female Population (millions)	Working Population (% of total population)
Netherlands	34,000	8.9	9.1	55
Germany	29,000	39.8	40.2	50
France	30,000	31.1	31.4	48
Spain	25,000	24.2	23.8	45
UK	33,000	27.9	28.1	52

Q27 If the annual birth rates for Germany and Spain are 5.4 births (per 500 population) and 6.4 births (per 500 population) respectively, what is the difference between the number of Spanish and German babies born each year?

(A) 24,960 more Spanish babies
(B) 100,000 more German babies
(C) 249,600 more German babies
(D) 1,233,000 more Spanish babies
(E) 123,300 less Spanish babies

Step 1 *– Calculate the number of German births per year*
39.8 + 40.2 = 80 million
5.4 x 80 million /500 = 864,000

Step 2 *– Calculate the number of Spanish births per year*
24.2 + 23.8 = 48 million
6.4 x 48 million /500 = 614,400

Step 3 *– Calculate the difference*
864,000 - 614,400 = 249,600

Thus the correct answer is (C) 249,600 more German babies

	Average Earnings (Euros per head of the working population)	Male Population (millions)	Female Population (millions)	Working Population (% of total population)
Netherlands	34,000	8.9	9.1	55
Germany	29,000	39.8	40.2	50
France	30,000	31.1	31.4	48
Spain	25,000	24.2	23.8	45
UK	33,000	27.9	28.1	52

Q28 Which of the following countries has a non-working population that is closest in number to the UK's non-working population?

(A) Netherlands
(B) Germany
(C) France
(D) Spain
(E) Cannot Say

Step 1 *- Calculate the populations for each country by adding the male and female population. Then calculate the non-working population for each country, including the UK, as shown below;*

	Total Population (millions)	Non Working Population (% of total population)	
Netherlands	8.9 + 9.1 = 18	100 – 55 = 45%	45% x 18 = 8.1
Germany	39.8 + 40.2 = 80	100 – 50 = 50%	50% x 80 = 40
France	31.1 + 31.4 = 62.5	100 – 48 = 52%	52% x 62.5 = 32.5
Spain	24.2 + 23.8 = 48	100 – 45 = 55%	55% x 48 = 26.4
UK	27.9 +28.1 = 56	100 – 52 = 48%	48% x 56 = 26.88

Thus the correct answer is (D) Spain

	Average Earnings (Euros per head of the working population)	Male Population (millions)	Female Population (millions)	Working Population (% of total population)
Netherlands	34,000	8.9	9.1	55
Germany	29,000	39.8	40.2	50
France	30,000	31.1	31.4	48
Spain	25,000	24.2	23.8	45
UK	33,000	27.9	28.1	52

Q29 If the ratio of French unemployed in urban to rural areas is 7:8 and the French unemployment rate is 12% of the working population, how many French unemployed are there in urban areas?

(A) 1,050,000
(B) 1,332,000
(C) 1,680,000
(D) 2,500,000
(E) 373,200

Step 1 *– Calculate the total population*
31.1 + 31.4 = 62.5 million

Step 2 *– Calculate the working population*
62.5 x 48% = 30 million

Step 3 *– Apply the unemployment rate*
30 million x 12% = 3.6 million

Step 4 *– Apply the urban to rural areas ratio*
3.6 million = 7:8
Urban areas unemployed = 3,600,000 x 7/15 = 1,680,000

Thus the correct answer is (C) 1,680,000

	Average Earnings (Euros per head of the working population)	Male Population (millions)	Female Population (millions)	Working Population (% of total population)
Netherlands	34,000	8.9	9.1	55
Germany	29,000	39.8	40.2	50
France	30,000	31.1	31.4	48
Spain	25,000	24.2	23.8	45
UK	33,000	27.9	28.1	52

Q30 If the ratio of France:Belgium average earnings per head of working population is 2:5, then what is Belgium's average earnings in £, at an exchange rate of 1.15 Euros to the £ (to the nearest £100)?

(A) £124,000
(B) £86,000
(C) £86,300
(D) £124,800
(E) £65,200

Step 1 *– Apply the ratio*
30,000: Belgian average earnings = 2:5
Belgian average earnings = (5 x 30,000)/2 = €75,000.

Step 2 *– Convert into £*
75,000 ÷ 1.15 = 65,217.4 = £65,200 (to the nearest £100)

Thus the correct answer is (E) £65,200

NUMERICAL REASONING TEST 10

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

	Number of Employees				
Parent Company's 5 subsidiary companies	2005	2006	2007	2008	2009
Subsidiary 1	1,538	1,584	1,573	1,585	1,614
Subsidiary 2	1,107	1,084	1,060	1,068	962
Subsidiary 3	1,340	1,384	1,393	1,398	1,412
Subsidiary 4	1,505	1,495	1,528	1,548	1,583
Subsidiary 5	1,010	980	946	997	1,029
Parent company: Employees working part-time (%)	12.0	8.1	8.0	5.4	5.0

Note: the entire workforce of the parent company comprises only the employees of its five subsidiary companies

Q1 Between which three years was there an average of 1,553 employees for one of the Subsidiary Companies?

(A)) 2005-2007 Subsidiary 1
(B)) 2006-2008 Subsidiary 1
(C)) 2007-2009 Subsidiary 4
(D)) 2007-2009 Subsidiary 1
(E)) None of these

Step 1 *– Looking at the employee totals there are only two Subsidiary Companies that could have an average of 1,553 employees across three years: Subsidiary Companies 1 and 4. The answer options include Subsidiary Companies 1 and 4, as well as (E) None of these.*

Step 2 *- Calculate the average number of employees for answer options (A) – (D)*
2005-2007 Subsidiary 1 = 1,565
2006-2008 Subsidiary 1 = 1,581
2007-2009 Subsidiary 4 = 1,553
2007-2009 Subsidiary 1 = 1,591

Thus the correct answer is (C) 2007-2009 Subsidiary 4

	Number of Employees				
Parent Company's 5 subsidiary companies	2005	2006	2007	2008	2009
Subsidiary 1	1,538	1,584	1,573	1,585	1,614
Subsidiary 2	1,107	1,084	1,060	1,068	962
Subsidiary 3	1,340	1,384	1,393	1,398	1,412
Subsidiary 4	1,505	1,495	1,528	1,548	1,583
Subsidiary 5	1,010	980	946	997	1,029
Parent company: Employees working part-time (%)	12.0	8.1	8.0	5.4	5.0

Note: the entire workforce of the parent company comprises only the employees of its five subsidiary companies

Q2 In 2008 subsidiary company 4 comprised 2 regions with double the number of employees in one region compared to the other. If the ratio of male:female employees in the smaller region was 1:1.15, what was this region's number of male employees?

(A) 240
(B) 828
(C) 414
(D) 394
(E) 360

Step 1 *– Calculate the number of employees in the smaller region 1,548/3= 516 employees*

Step 2 *– Apply the 1:1.15 Male:Female ratio 516/2.15 = 240 male employees*

Thus the correct answer is (A) 240

	Number of Employees				
Parent Company's 5 subsidiary companies	**2005**	**2006**	**2007**	**2008**	**2009**
Subsidiary 1	1,538	1,584	1,573	1,585	1,614
Subsidiary 2	1,107	1,084	1,060	1,068	962
Subsidiary 3	1,340	1,384	1,393	1,398	1,412
Subsidiary 4	1,505	1,495	1,528	1,548	1,583
Subsidiary 5	1,010	980	946	997	1,029
Parent company: Employees working part-time (%)	12.0	8.1	8.0	5.4	5.0

Note: the entire workforce of the parent company comprises only the employees of its five subsidiary companies

Q3 1 in 15 of the parent company's part-time employees were managers in 2005, and 1 in 13 part-time employees were managers in 2007. What was the difference in the number of part-time managers in 2005 compared to 2007?

(A)) 14 less
(B) 12 more
(C)) 12 less
(D)) 13 more
(E)) Cannot Say

		2005	*2007*
		1,538	*1,573*
		1,107	*1,060*
		1,340	*1,393*
		1,505	*1,528*
		1,010	*946*
Step 1	*Total employees for each year =*	*6,500*	*6,500*
Step 2	*Part-time employees =*	*6,500 x 12% = 780*	*6,500 x 8% = 520*
Step 3	*Managers =*	*780 / 15 = 52*	*520 / 13 = 40*

Step 4 *Difference = 52 – 40 = 12*

Thus the correct answer is (B) 12 more

	Number of Employees				
Parent Company's 5 subsidiary companies	**2005**	**2006**	**2007**	**2008**	**2009**
Subsidiary 1	1,538	1,584	1,573	1,585	1,614
Subsidiary 2	1,107	1,084	1,060	1,068	962
Subsidiary 3	1,340	1,384	1,393	1,398	1,412
Subsidiary 4	1,505	1,495	1,528	1,548	1,583
Subsidiary 5	1,010	980	946	997	1,029
Parent company: Employees working part-time (%)	12.0	8.1	8.0	5.4	5.0

Note: the entire workforce of the parent company comprises only the employees of its five subsidiary companies

Q4 What % of the Parent Company's total employees worked for Subsidiary 5 in 2006 (to the nearest whole %)?

(A) 12%
(B) 10%
(C) 18%
(D) 15%
(E) 9%

Step 1 *- Calculate the total number of employees across all 5 Subsidiaries i.e. the Parent Company's number of employees = 6,527*

Step 2 *– Calculate the % of Subsidiary 5 employees 980/6527 = 15.01%*

Thus the correct answer is (D) 15%

	Number of Employees				
Parent Company's 5 subsidiary companies	**2005**	**2006**	**2007**	**2008**	**2009**
Subsidiary 1	1,538	1,584	1,573	1,585	1,614
Subsidiary 2	1,107	1,084	1,060	1,068	962
Subsidiary 3	1,340	1,384	1,393	1,398	1,412
Subsidiary 4	1,505	1,495	1,528	1,548	1,583
Subsidiary 5	1,010	980	946	997	1,029
Parent company: Employees working part-time (%)	12.0	8.1	8.0	5.4	5.0

Note: the entire workforce of the parent company comprises only the employees of its five subsidiary companies

Q5 In 2009 what was the absolute difference between the Parent Company's full-time employees and part-time employees (if Number of employees = Full-time employees + part-time employees)?

(A) 6,270
(B) 90
(C) 4,733
(D) 6,600
(E) 5,940

Step 1 *– Calculate the total employees in 2009*
1,614 + 962 + 1,412 + 1,583 + 1,029 = 6,600

Step 2 *– Calculate the number of full-time employees*
Number of employees = Full-time employees + part-time employees
6,600 = 100% = x% + 5%
Full-time employees = 95%

Step 3 *– Calculate the difference in the % of part-time employees to full-time employees*
95% - 5% = 90%

Step 4 *– Calculate the difference*
6,600 x 90% = 5,940

Thus the correct answer is (E) 5,940

Laptop model	COSTS		UK Price (£)	Sale price as fraction of normal UK price
	Manufacturing cost (£)	Design cost (£)		
Adelphi	165	60	400	1/2
Adele	140	90	350	3/4
Faze	120	60	380	2/5
Stunn	145	115	420	1/2
Brete	195	130	650	2/3

Q6 For which laptop, or laptops, is the difference between the manufacturing cost and the design cost less than 20% of the manufacturing cost?

(A) Brete
(B) Stunn and Adelphi
(C) Adelphi
(D) Stunn
(E)) None of these

Step 1 *- Calculate the % difference between the manufacturing cost and the design cost (relative to manufacturing cost) for each laptop as shown below:*

Faze	*(120 - 60)/120 = 50%*
Brete	*(195 - 130)/195 = 33%*
Adele	*(140 - 90)/140 = 36%*
Stunn	*(145 - 115)/145 = 21%*
Adelphi	*(165 - 60)/165 = 64%*

Thus the correct answer is (E) None of these

Laptop model	COSTS		UK Price (£)	Sale price as fraction of normal UK price
	Manufacturing cost (£)	Design cost (£)		
Adelphi	165	60	400	1/2
Adele	140	90	350	3/4
Faze	120	60	380	2/5
Stunn	145	115	420	1/2
Brete	195	130	650	2/3

Q7 Put the laptop models in order of increasing mark-up (Mark-up = Price – Costs).

(A) Adele, Adelphi, Stunn, Faze, Brete
(B) Adele, Stunn, Brete, Adelphi, Faze
(C) Adele, Stunn, Adelphi, Faze, Brete
(D) Stunn, Adele, Adelphi, Brete, Faze
(E) Adele, Stunn, Adelphi, Brete, Faze

Step 1 *– For each laptop model calculate the total costs, then deduct this from the price, as shown below:*

	Total Cost	*Mark-up*
Adelphi	*165 + 60 = 225*	*400 – 225 = 175*
Adele	*140 + 90 = 230*	*350 – 230 = 120*
Faze	*120 + 60 = 180*	*380 – 180 = 200*
Stunn	*145 + 115 = 260*	*420 – 260 = 160*
Brete	*195 + 130 = 325*	*650 – 325 = 325*

Thus the correct Answer is (C) Adele, Stunn, Adelphi, Faze, Brete

Laptop model	COSTS		UK Price (£)	Sale price as fraction of normal UK price
	Manufacturing cost (£)	Design cost (£)		
Adelphi	165	60	400	1/2
Adele	140	90	350	3/4
Faze	120	60	380	2/5
Stunn	145	115	420	1/2
Brete	195	130	650	2/3

Q8 If the same number of each model was sold last month and total sales were £220,000, how many of each model were sold?

(A) 200
(B) 2510
(C) 100
(D) 2150
(E) Cannot Say

Step 1 *– Calculate the total sales value of one of each type of laptop*
400 + 350 + 380 + 420 + 650 = 2200

Step 2 *– Divide total monthly sales by this number*
220,000/2200 = 100

Thus the correct answer is (C) 100

Laptop model	COSTS Manufacturing cost (£)	Design cost (£)	UK Price (£)	Sale price as fraction of normal UK price
Adelphi	165	60	400	1/2
Adele	140	90	350	3/4
Faze	120	60	380	2/5
Stunn	145	115	420	1/2
Brete	195	130	650	2/3

Q9 Which of the following would generate the highest total amount at the sale prices shown?

(A)) 75 Adele laptops on sale
(B)) 150 Adele laptops at a further 60% reduction to the sale price
(C)) 50 Faze and 50 Stunn laptops on sale
(D)) 45 Brete laptops on sale
(E)) 90 Stunn laptops on sale

Step 1 *– Calculate the sales price for the 4 laptops that are listed as possible answer options, using the column giving sale price fraction of normal price;*

	Sale Price (£)
Adele	*= 350 x 3/4 = 262.5*
Faze	*= 380 x 2/5 = 152*
Stunn	*= 420 x 1/2 = 210*
Brete	*= 650 x 2/3 = 433.33*

Step 2 *– Go through answer options (A) to (E) calculating the total amount*

(A) 75 Adele laptops = 75 x 262.5 = £19,687.50
(B) 150 Adele laptops at a price further reduced by 60% = 40% x 150 x 262.5 = £15,750
(C) 50 Faze and 50 Stunn laptops = 50 x (152 + 210) = £18,100
(D) 45 Brete laptops = 45 x 433.33 = £19,499.85
(E) 90 Stunn laptops = 90 x 210 = £18,900.00

Thus the correct answer is (A) 75 Adele laptops

Laptop model	COSTS		UK Price (£)	Sale price as fraction of normal UK price
	Manufacturing cost (£)	Design cost (£)		
Adelphi	165	60	400	1/2
Adele	140	90	350	3/4
Faze	120	60	380	2/5
Stunn	145	115	420	1/2
Brete	195	130	650	2/3

Q10 The current exchange rate for US Dollars to the Pound is 1.62 USD to 1 Pound. How much would it cost a customer in the USA to purchase a Faze laptop once a discount of 12% has been applied? Assuming that the overseas sale prices are equivalent to that in the UK.

(A) $612.89
(B) $590.47
(C) $574.66
(D) $541.73
(E) $523.52

Step 1 *– Multiply the UK sale price for a Faze laptop by the exchange rate (1.62) in order to get the equivalent price in US Dollars. 380 x 1.62 = 615.6*

Step 2 *– Then multiply this figure by 0.88 to find the cost once the 12% discount has been applied. 615.6 x 0.88 = 541.728*

Thus the correct answer is (D) $541.73

Online Monthly Average	Number of people searching (1000s)	Total Searches (millions)	% of people searching	
			Selling goods/services	Buying goods/services
Australia	19,613	2,412	10	32
Ireland	1,146	170	3	28
UK	31,225	3,975	12	22
Italy	14,850	1,855	6	8
Sweden	16,204	9,578	21	42

Goods/services bought online (%)	Household goods	Films/ music	Financial products	Tickets	Holidays
Australia	9	12	3	17	22
Ireland	3	9	2	10	18
UK	13	10	2	9	15
Italy	9	8	3	8	9
Sweden	5	2	1	3	4

Q11 In which country was there the second highest number of people searching who were buying goods/services online?

(A) Australia
(B) Ireland
(C)) UK
(D) Italy
(E) Sweden

Step 1 *- The first table shows the % of people searching buying goods/services, as well as the number of searches. Use these columns to find the total number of people buying per country, as follows:*

	(1000's)
Australia	*32% x 19,613 = 6,276.16*
Ireland	*28% x 1,146 = 320.88*
UK	*22% x 31,225 = 6,869.50*
Italy	*8% x 14,850 = 1,188*
Sweden	*42% x 16,204 = 6,805.68*

Thus the correct answer is (E) Sweden

Online Monthly Average	Number of people searching (1000s)	Total Searches (millions)	% of people searching	
			Selling goods/services	Buying goods/services
Australia	19,613	2,412	10	32
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Italy	9	8	3	8	9
Sweden	5	2	1	3	4

Q12 In which country was there the second lowest number of people searching who were selling goods/services online?

(A) Australia
(B) Ireland
(C)) UK
(D) Italy
(E) Sweden

Step 1 *- The first table shows the % of people searching buying goods/services, as well as the number of searches. Use these columns to find the total number of searchers per country – whilst ensuring that - unlike the previous question – you provide the second lowest number of Searchers.*

	(1000's)
Australia	*10% x 19,613 = 1,961.30*
Ireland	*3% x 1,146 = 34.38*
UK	*12% x 31,225 = 3,747.00*
Italy	*6% x 14,850 = 891.00*
Sweden	*21% x 16,204 = 3,402.84*

Thus the correct answer is (D) Italy

Online Monthly Average	Number of people searching (1000s)	Total Searches (millions)	% of people searching	
			Selling goods/services	Buying goods/services
Australia	19,613	2,412	10	32
Ireland	1,146	170	3	28
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Sweden	5	2	1	3	4

Q13 If in the UK each person searching online spends on average £1.50 per month buying goods/services, approximately what is the annual spend from everyone in the UK buying goods/services online?

(A)) £125 million
(B)) £10 million
(C)) £56 million
(D)) £124 million
(E)) £12.3 million

Tip: make sure you use the number of people actually buying goods/services, as opposed to people just searching.

Step 1 – Calculate the number of people in the UK searching who bought goods/services online.

People searching	% of searchers Buying goods/services	
31,225,000	22	31,225,000 x 22% = 6,869,500

Step 2 – Calculate the annual spend
£1.50 x 6,869,500 x 12 = £123,651,000 = £124 million

Thus the correct answer is (D) £124 million

Online Monthly Average	Number of people searching (1000s)	Total Searches (millions)	% of people searching	
			Selling goods/services	Buying goods/services
Australia	19,613	2,412	10	32
Ireland	1,146	170	3	28
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Sweden	5	2	1	3	4

Q14 If the three countries *I.U.I.* (Ireland, UK, Italy) are grouped together and the other two countries *S.A.* (Sweden, Australia) are also grouped together, what is the difference between the number of people searching per *I.U.I.* country and the number of people searching per *S.A.* country?

(A)) None of these
(B)) 2,000 million
(C)) 3,995 million
(D)) 6,000 million
(E)) 1,500 million

Step 1 *– Calculate the I.U.I. countries number of online searches*
170 + 3,975 + 1,855 = 6,000

Step 2 *– Calculate the number of Internet searches for the S.A. countries*
2,412 + 9,578 = 11,990

Step 3 *– Calculate the averages I.U.I. = 6,000 / 3 = 2,000 S.A. = 11,990 / 2 = 5,995*

Step 4 *– Calculate the difference between the averages 5,995 – 2,000 = 3,995*

Thus the correct answer is (C) 3,995 million

Online Monthly Average	Number of people searching (1000s)	Total Searches (millions)	% of people searching	
			Selling goods/services	Buying goods/services
Australia	19,613	2,412	10	32
Ireland	1,146	170	3	28
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UK	13	10	2	9	15
Italy	9	8	3	8	9
Sweden	5	2	1	3	4

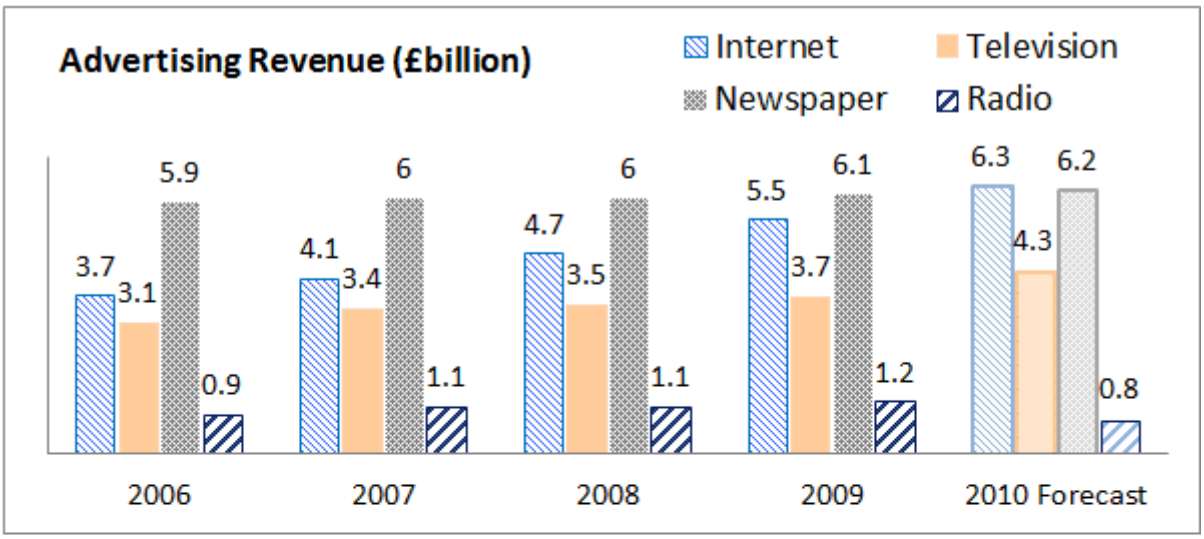
Q15 Which country has the lowest number of online searches per person searching?

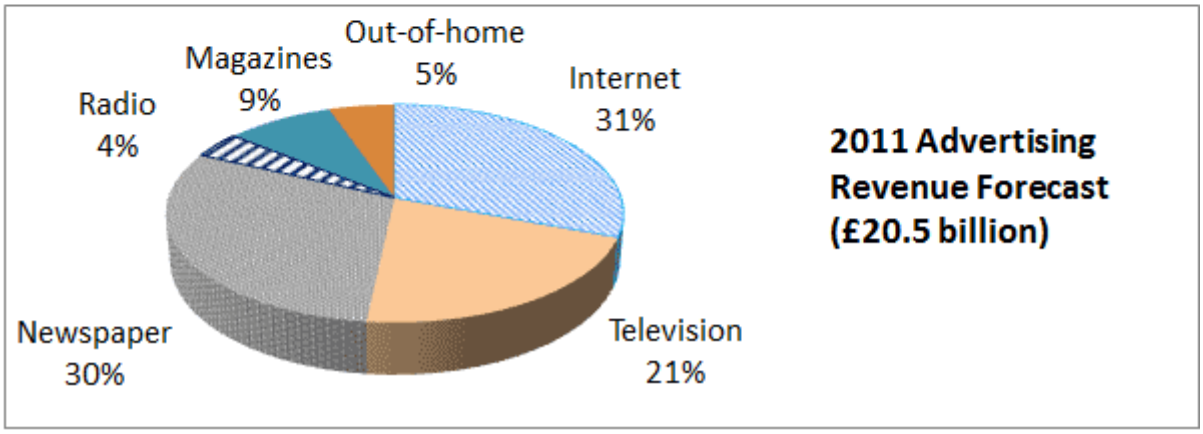
(A) Australia
(B) Ireland
(C)) UK
(D) Italy
(E) Sweden

Step 1 *- Calculate the average number of searches per person searching for each of the countries, as follows:*

	People searching (1000s)	*Total Searches (millions)*	*Average number of searches per person (1000)*
Australia	*19,613*	*2,412*	*2,412,000/19,613 = 122.98*
Ireland	*1,146*	*170*	*170,000/1,146 = 148.3*
UK	*31,225*	*3,975*	*3,975,000/31,225 = 127.3*
Italy	*14,850*	*1,855*	*1,855,000/14,850 = 124.92*
Sweden	*16,204*	*9,578*	*9,578,000/16,204 = 591.09*

Thus the correct answer is (A) Australia





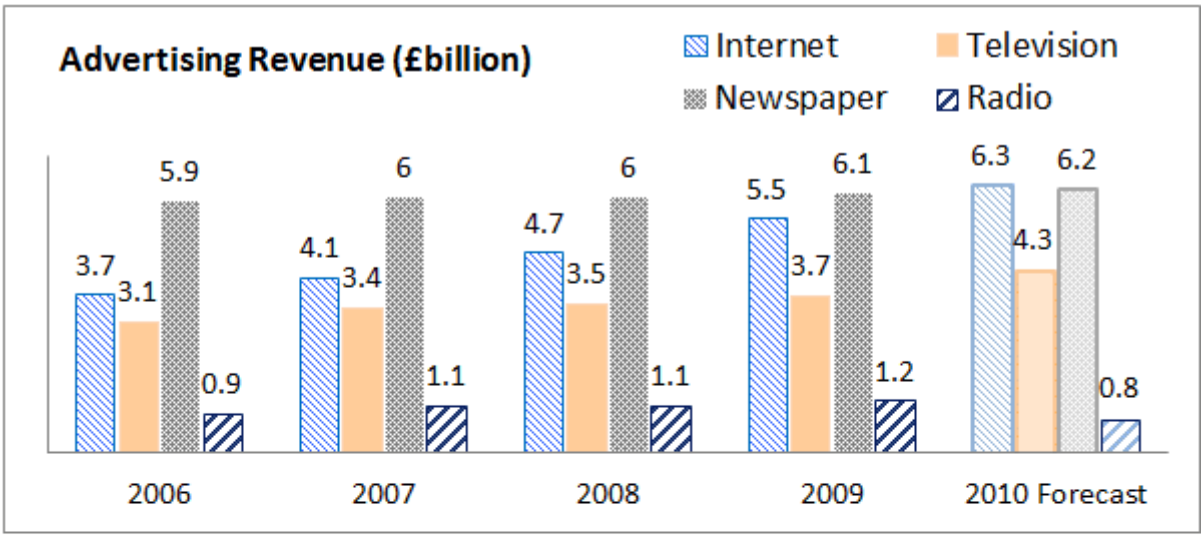
Q16 Which of the following two media are predicted together to generate £6.15 billion of advertising revenue in 2011?

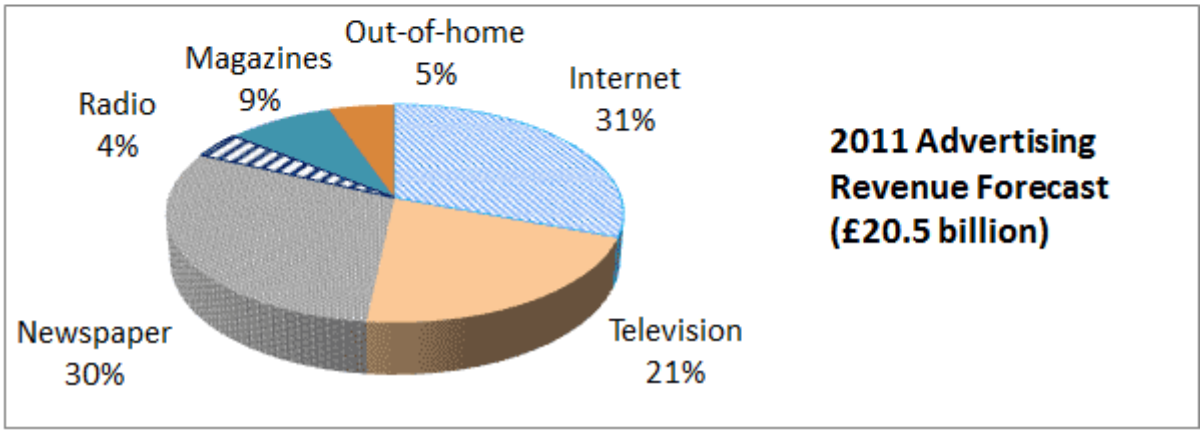
(A)) Television and Radio
(B)) Newspaper and Radio
(C)) Out-of-home and Newspaper
(D)) Radio and Magazines
(E) Magazines and Television

Step 1 *- Calculate the 2011 advertising revenue using the pie-chart data, look for the combinations which add up to 6.15*

Television	*21% x £20.5 billion = 4.305*
Newspaper	*30% x £20.5 billion = 6.15*
Out-of-home	*5% x £20.5 billion = 1.025*
Radio	*4% x £20.5 billion = 0.82*
Magazines	*9% x £20.5 billion = 1.845*

Thus the correct answer is (E) Magazines and Television





Q17 If the Internet advertising forecast for 2011 is expected to split into mobile: display advertising in a 1:4 ratio, what is the mobile forecast?

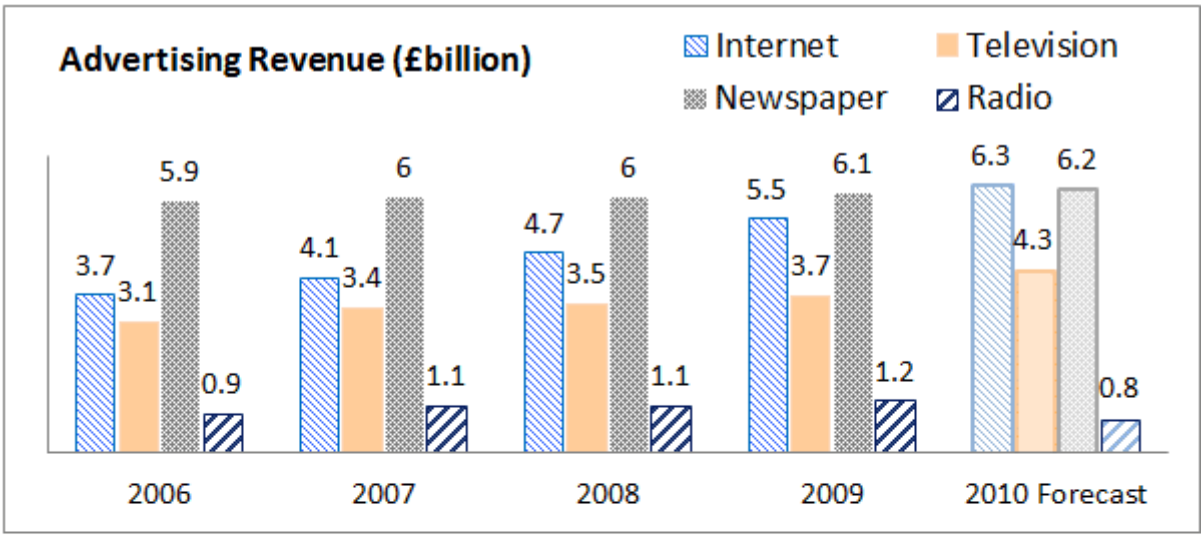
(A)) £20.5 billion
(B)) £1.55 billion
(C)) £1.27 billion
(D)) £31.00 billion
(E)) £7.75 billion

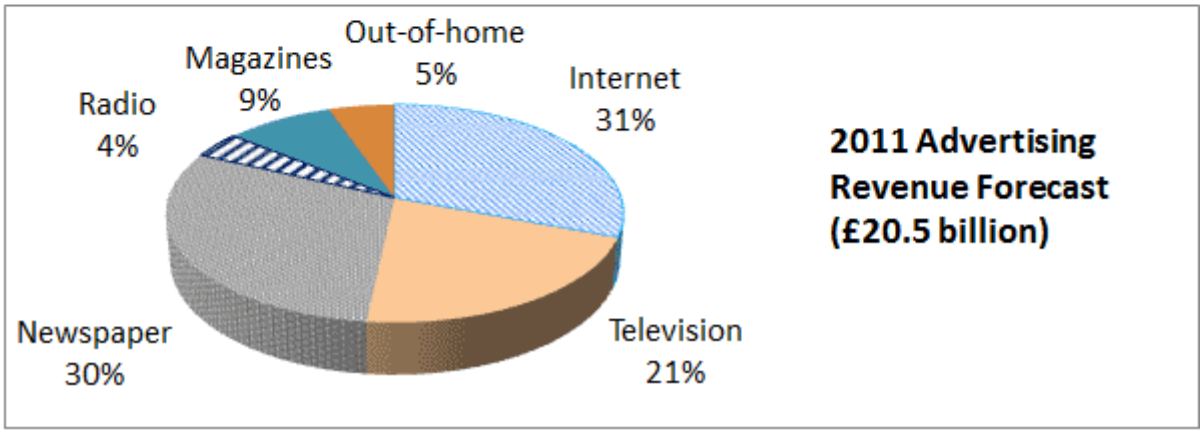
The information that you need is shown in the pie-chart

Step 1 *– Calculate the Internet advertising forecast for 2011*
31% x £20.5 billion = £6.355 billion

Step 2 *– Apply the ratio*
1:4, so mobile = 1/5th of £6.335 billion = £1.27 billion

Thus the correct answer is (C) £1.27 billion





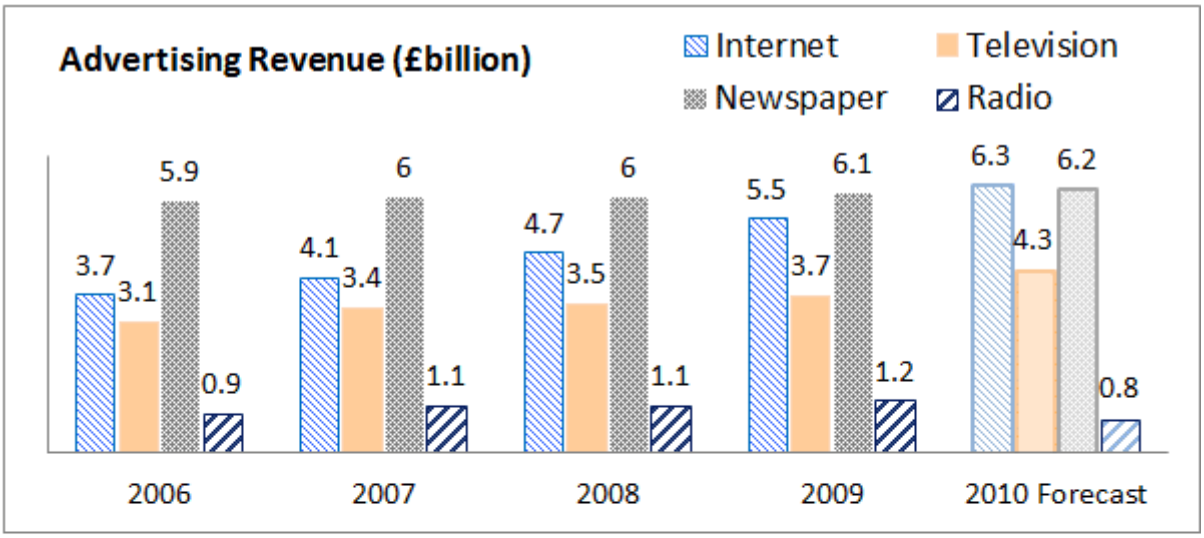
Q18 If the same absolute trends in advertising revenue from 2009 to 2010 continue for 2010 to 2011, then what will be the 2011 advertising revenue for Television and Internet combined?

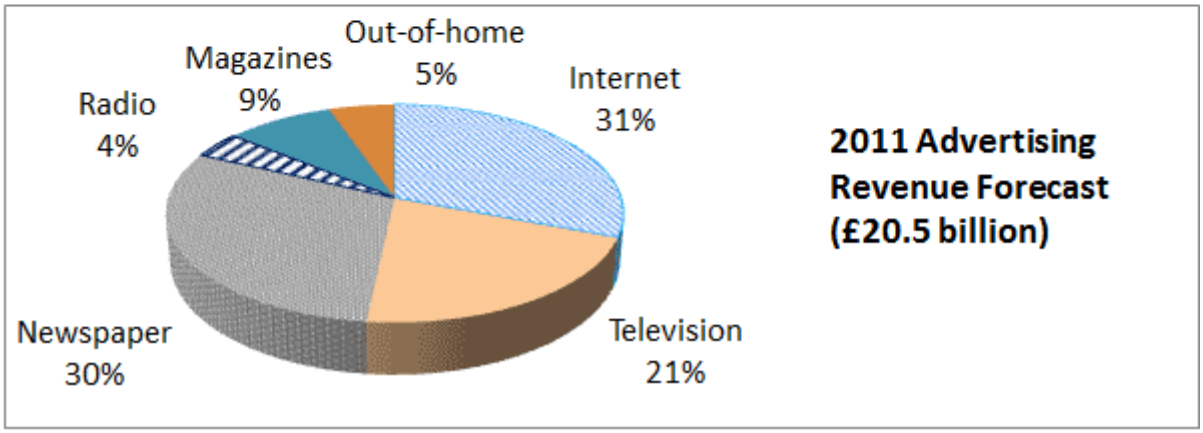
(A)) £8.1 billion
(B)) £16.2 billion
(C)) £21.2 billion
(D)) £12 billion
(E)) £10.6 billion

Step 1 *– Calculate the 2009-2010 change in Television and Internet combined*
Television: 4.3 – 3.7 = 0.6 increase
Internet: 6.3 – 5.5 = 0.8 increase
Television and Internet combined = 1.4 increase

Step 2 *– Apply the same change to the 2010 total for Television and Internet combined*
6.3 + 4.3 +1.4 = 12

Thus the correct answer is (D) £12 billion





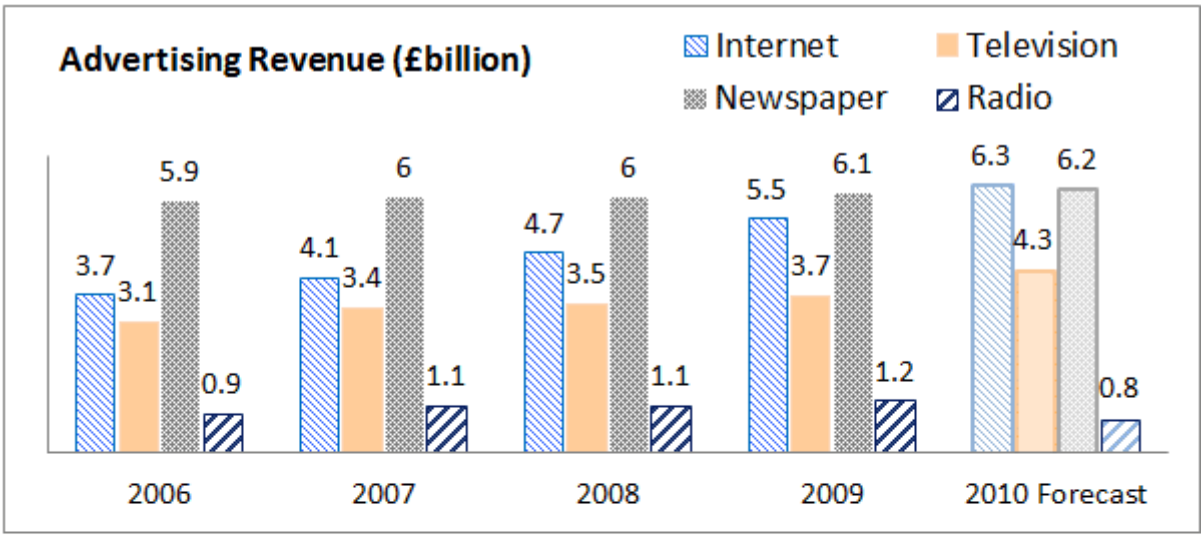
of the year's total advertising revenue?

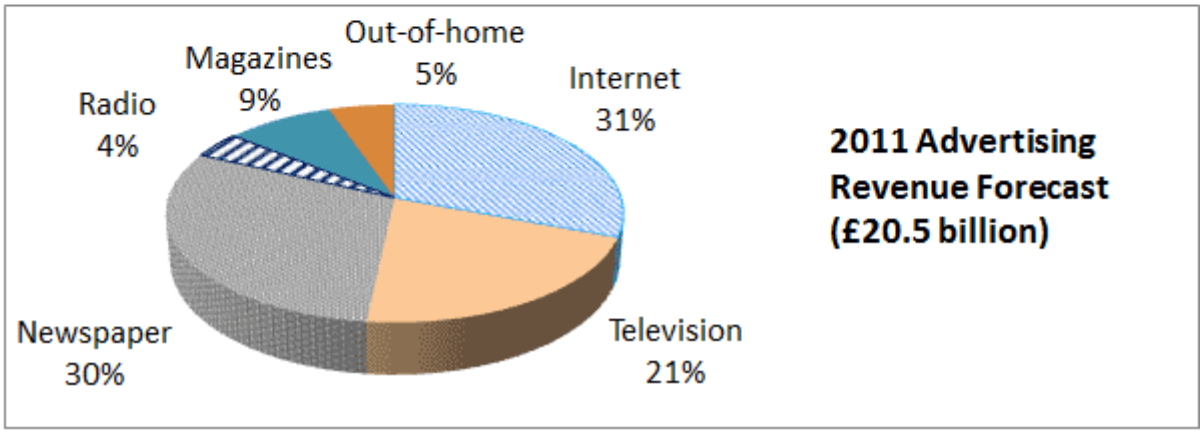
(A)) Cannot Say
(B) 2008 and 2006
(C) 2006
(D) 2009 and 2008
(E) 2009

Step 1 *- Calculate Television's % of the total revenue for each of the four years given as answer options;*

	Television Revenue	*Total Revenue*	*% of total revenue*
2006	*3.1*	*13.6*	*22.8*
2007	*3.4*	*14.6*	*23.3*
2008	*3.5*	*15.3*	*22.9*
2009	*3.7*	*16.5*	*22.4*

Thus the correct answer is (E) 2009





Q20 If in 2009 an external market force had reduced the year's advertising revenue from Newspapers by 10% and from the Internet by 20%, then what was the total 2009 advertising revenue?

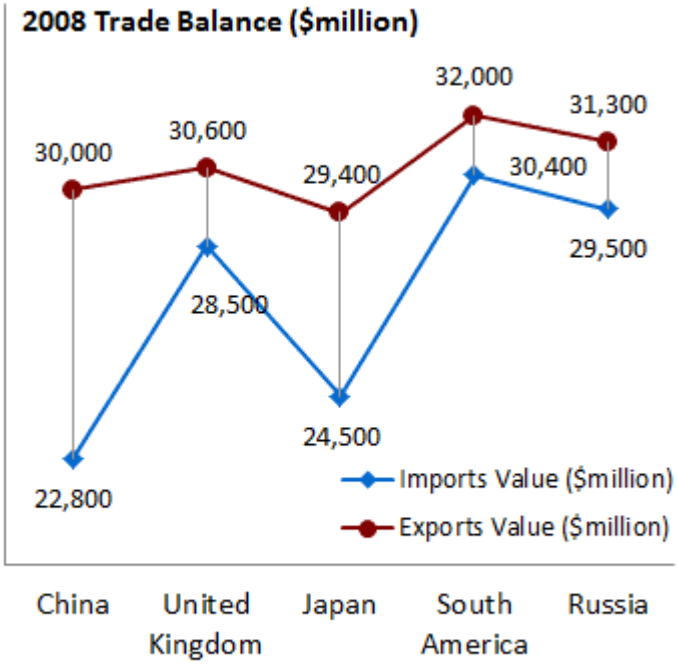
(A)) None of these
(B)) £9.89 billion
(C)) £11.6 billion
(D)) £10.44 billion
(E)) £14.79 billion

Step 1 *– Calculate the adjusted Newspaper revenue*
6.1 x 90% = 5.49

Step 2 *– Calculate the adjusted Internet revenue*
5.5 x 80% = 4.4

Step 3 *– Calculate the adjusted total 2009 advertising revenue*
5.49 + 4.4 + 3.7 (television) + 1.2 (radio) = 14.79

Thus the correct answer is (E) £14.79 billion



2009 Trade Balance*

	Value ($ million)
China	18,400
United Kingdom	1,825
Japan	5,840
South America	1,950
Russia	1,200

* Trade balance = (Exports Value) – (Imports Value)

Q21 Of the regions shown what was the difference between the highest and the lowest trade balance in 2008?

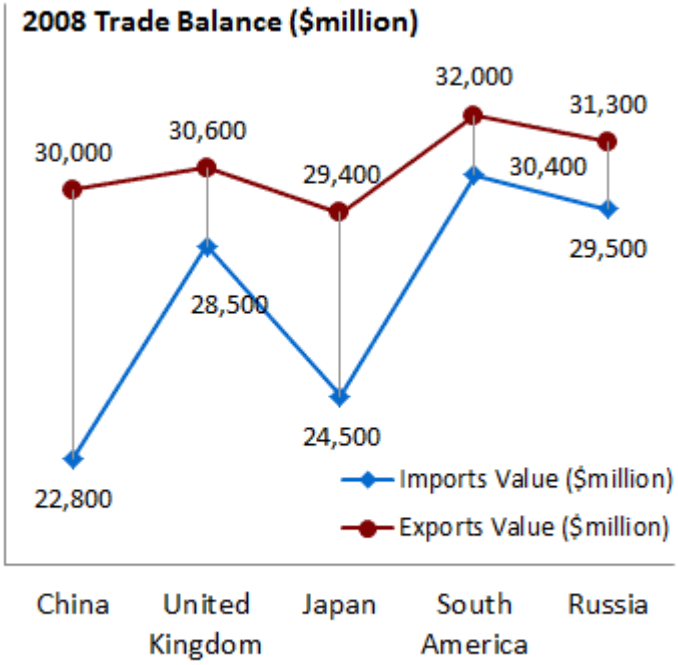
(A)) None of these
(B)) $5,100 million
(C)) $510 million
(D)) $5,400 million
(E)) $5,600 million

Step 1 *- Use the graph (i.e. 2008 figures) to calculate the trading balance (exports – imports) for each region*

	Exports – imports ($million)
China	*30,000 – 22,800 = 7,200*
United Kingdom	*30,600 – 28,500 = 2,100*
Japan	*29,400 – 24,500 = 4,900*
South America	*32,000 – 30,400 = 1,600*
Russia	*31,300 – 29,500 = 1,800*

Step 2 *– Calculate the difference between the highest and the lowest trading balance*
7,200 – 1,600 = $5,600 million

Thus the correct answer is (E) $5,600 million



2009 Trade Balance*

	Value ($ million)
China	18,400
United Kingdom	1,825
Japan	5,840
South America	1,950
Russia	1,200

* Trade balance = (Exports Value) – (Imports Value)

Q22 If Japan's exports value increased by 1/5th between 2008 and 2009 then what was Japan's imports value in 2009?

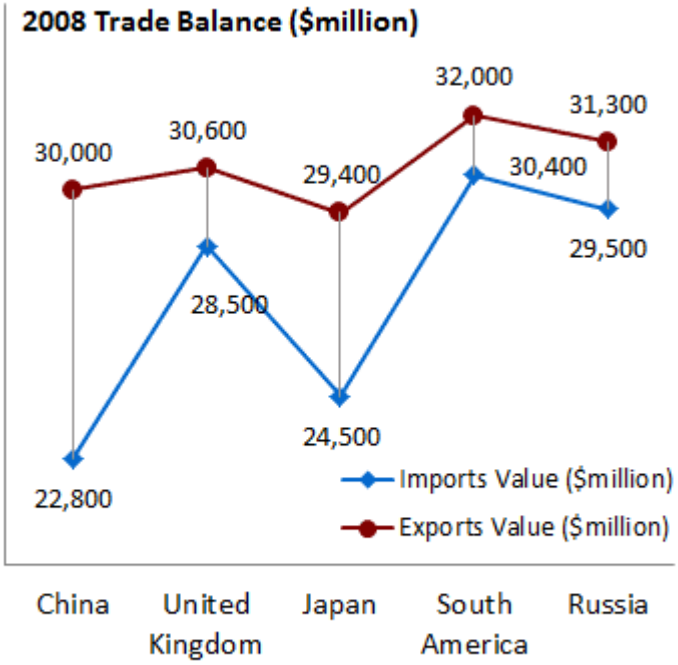
(A)) Cannot Say
(B)) $29,400 million
(C)) $23,560 million
(D)) $25,560 million
(E)) $29,440 million

Step 1- *Use the graph to obtain the 2008 exports value = 29,400*

Step 2 – *Add 1/5th to find the 2009 exports value*
29,400 x 1.2 = 35,280

Step 3 - *Use the table to obtain the 2009 trade balance = 5,840*
Japan's imports value in 2009 = 35,280 – 5,840 = $29,440 million

Thus the correct answer is (E) $29,440 million



2009 Trade Balance*

	Value ($ million)
China	18,400
United Kingdom	1,825
Japan	5,840
South America	1,950
Russia	1,200

* Trade balance = (Exports Value) – (Imports Value)

Q23 Compared to 2009, the UK's trade balance is expected to increase by 3.5% in 2010 and China's trading balance is expected to decrease by 4.4%. What is the difference between the 2010 trade balance forecasts for these countries (to the nearest $million)?

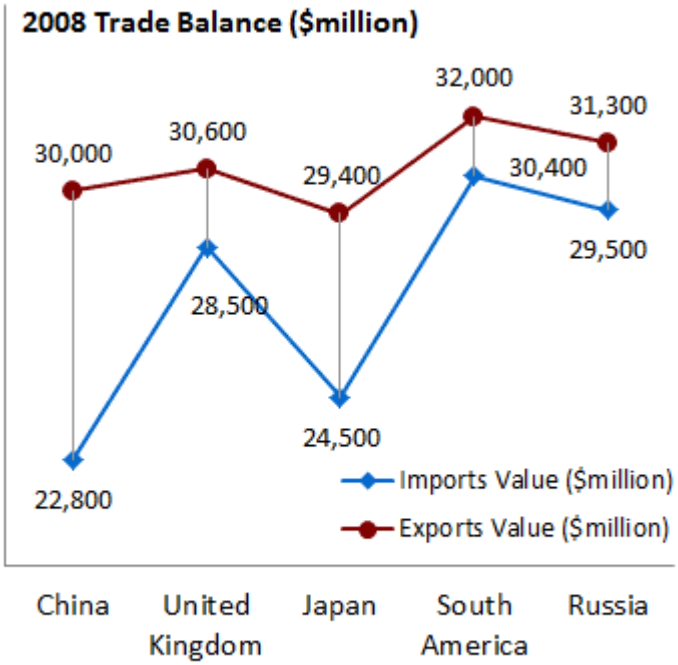
(A)) $14,405 million
(B)) $15,000 million
(C)) $16,000 million
(D)) $15,702 million
(E)) $17,000 million

Step 1 *– Calculate the increase for the UK and the decrease for China*
UK: 103.5% x 1,825 = 1,888.875
China: 95.6% x 18,400 = 17,590.4

Step 2 *– Calculate the difference*
17,590.4 - 1,888.875 = $15,701.525 (million $)

Tip *- These numbers are already in million $, so don't be tempted to round the answer to (C) $16,000 million.*

Thus the correct answer is (D) $15,702 million



2009 Trade Balance*	
	Value ($ million)
China	18,400
United Kingdom	1,825
Japan	5,840
South America	1,950
Russia	1,200

* Trade balance = (Exports Value) – (Imports Value)

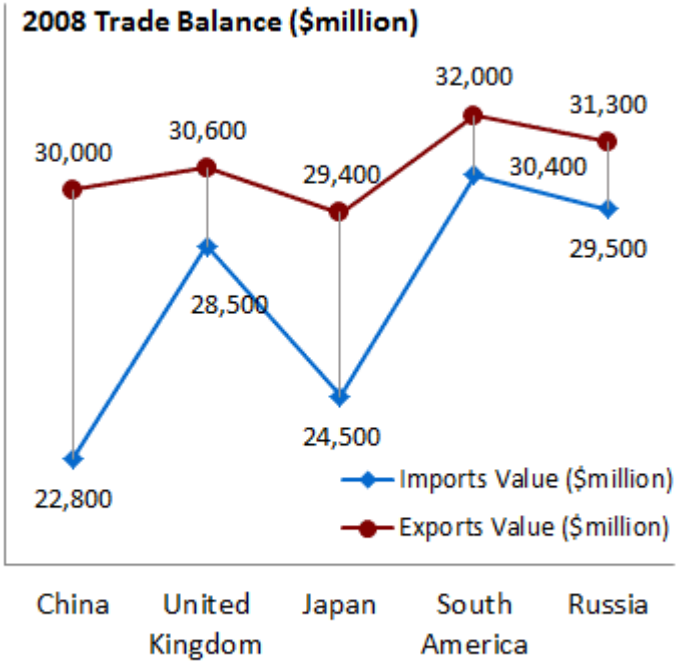
Q24 Which region or regions have experienced a decrease in their trade balance between 2008 and 2009?

(A) South America, United Kingdom
(B)) United Kingdom, Russia
(C) South America, Russia
(D) South America
(E) Russia

Step 1 *- Using the trade balance figures for 2008 from the earlier question, calculate the change in trade balances for each region between 2008 and 2009*

China	*18,400 – 7,200 = 11,200 increase*
United Kingdom	*1,825 – 2,100 = 275 decrease*
Japan	*5,840 – 4,900 = 940 increase*
South America	*1,950 – 1,600 = 350 increase*
Russia	*1,200 – 1,800 = 600 decrease*

Thus the correct answer is (B) United Kingdom, Russia



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	Value ($ million)
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United Kingdom	1,825
Japan	5,840
South America	1,950
Russia	1,200

* Trade balance = (Exports Value) – (Imports Value)

Q25 What is the trading balance range (highest minus lowest) for the five regions between 2008-2009?

(A)) $1,200 million – $18,400 million
(B)) $5,400 million
(C)) $17,200 million
(D)) $1,600 million – $18,400 million
(E)) $1,800 million – $7,200 million

Step 1 *- To save time you can use the trading balance figures for 2008 from the earlier question. Then calculate the range across both years.*

	2008 ($million)	*2009 ($million)*
China	*7,200*	*18,400*
United Kingdom	*2,100*	*1,825*
Japan	*4,900*	*5,840*
South America	*1,600*	*1,950*
Russia	*1,800*	*1,200*

Step 2 - *The lowest and the highest values are 1,200 and 18,400 respectively.*

Tip: remember the question defined the 'range' as highest minus lowest, as is often convention in finance and accounting professions. Answering with the highest and lowest numbers is not what the question asked for.

Thus the correct answer is (C) $17,200 million

	Annual Birth rate	Annual births		Annual birth rate for sets of twins
	(per 1000 of total population)	Male	Female	(as a % of annual births)
COUNTRY				
Scotland	12.2	28,693	27,086	1.6
Northern Ireland	14.8	13,515	12,934	1.9
Wales	12.5	18,640	16,800	1.25
REGION				
Inner London	16.4	24,735	23,461	1.7
Outer London	15.1	35,811	34,189	2
South West	12	30,258	28,747	1.8
South East	12.3	53,141	50,099	1.8
East	12.1	34,745	32,564	2

Q26 If the number of annual births are distributed evenly across the year and they remain constant at the levels shown, then how many months will it take for Outer London's population to increase by 245,000? (Ignoring death rate)

(A) 34
(B) 36
(C)) 38
(D)) 40
(E) 42

Step 1 *– Calculate the total annual births*
35,811 + 34,189 = 70,000

Step 2 *– Calculate the number of years and months required to reach 245,000*
245,000 / 70,000 = 3.5 years = 42 months

Thus the correct answer is (E) 42

	Annual Birth rate	Annual births		Annual birth rate for sets of twins
	(per 1000 of total population)	Male	Female	(as a % of annual births)
COUNTRY				
Scotland	12.2	28,693	27,086	1.6
Northern Ireland	14.8	13,515	12,934	1.9
Wales	12.5	18,640	16,800	1.25
REGION				
Inner London	16.4	24,735	23,461	1.7
Outer London	15.1	35,811	34,189	2
South West	12	30,258	28,747	1.8
South East	12.3	53,141	50,099	1.8
East	12.1	34,745	32,564	2

Q27 Which country or countries shown have a population of less than 2.9 million people?

(A) Wales, Scotland
(B)) Northern Ireland, Wales, Scotland
(C) Scotland
(D)) Northern Ireland, Wales
(E)) Cannot Say

Step 1 *- A country's population can be calculated using the Annual Birth rate - which is given per 1000 of total population – and the number of live births that when combined make up the annual birth rate.*

	Annual Birth rate (per 1000 of total population)	*Number of births*	*Population*
Scotland	*12.2*	*28,693 + 27,086 = 55,779*	*1000 x 55,779/12.2 = 4,572,049.1*
Northern Ireland	*14.8*	*13,515 + 12,934 = 26,449*	*1000 x 26,449/14.8 = 1,787,094.5*
Wales	*12.5*	*18,640 + 16,800 = 35,440*	*1000 x 35,440/12.5 = 2,835,200*

Thus the correct answer is (D) Northern Ireland, Wales

	Annual Birth rate (per 1000 of total population)	Annual births		Annual birth rate for sets of twins (as a % of annual births)
		Male	Female	
COUNTRY				
Scotland	12.2	28,693	27,086	1.6
Northern Ireland	14.8	13,515	12,934	1.9
Wales	12.5	18,640	16,800	1.25
REGION				
Inner London	16.4	24,735	23,461	1.7
Outer London	15.1	35,811	34,189	2
South West	12	30,258	28,747	1.8
South East	12.3	53,141	50,099	1.8
East	12.1	34,745	32,564	2

Q28 What is the population of Inner and Outer London combined (to the nearest 100,000)?

(A) 8,000,000
(B) 4,600,000
(C) 3,000,000
(D) 7,600,000
(E) None of these

	Annual Birth rate (per 1000 of total population)	*Number of births*	*Population*
Inner London	*16.4*	*24,735 + 23,461 = 48,196*	*1000 x 48,196/16.4 = 2,938,780.4*
Outer London	*15.1*	*35,811 + 34,189 = 70,000*	*1000 x 70,000/15.1 = 4,635,761.5*

Step 1 - Inner and Outer London population = 2,938,780.4 + 4,635,761.5 = 7,574,541.9

Thus the correct answer is (D) 7,600,000

	Annual Birth rate	Annual births		Annual birth rate for sets of twins
	(per 1000 of total population)	Male	Female	(as a % of annual births)
COUNTRY				
Scotland	12.2	28,693	27,086	1.6
Northern Ireland	14.8	13,515	12,934	1.9
Wales	12.5	18,640	16,800	1.25
REGION				
Inner London	16.4	24,735	23,461	1.7
Outer London	15.1	35,811	34,189	2
South West	12	30,258	28,747	1.8
South East	12.3	53,141	50,099	1.8
East	12.1	34,745	32,564	2

Q29 How many babies are born on average as twin births in Wales over five years? (Assume that the annual birth rate and number of births remains the same across the five years).

(A) 4,430
(B) 886
(C) 2,215
(D) 443
(E) Cannot Say

Step 1 *– Calculate the total number of births in Wales*
18,640 + 16,800 = 35,440

Step 2 *– Calculate the annual number of twin births*
35,440 x 1.25% = 443

Step 3 *– Number of babies over 5 years*
443 x 2 x 5 = 4,430

Thus the correct answer is (A) 4,430

	Annual Birth rate	Annual births		Annual birth rate for sets of twins
	(per 1000 of total population)	Male	Female	(as a % of annual births)
COUNTRY				
Scotland	12.2	28,693	27,086	1.6
Northern Ireland	14.8	13,515	12,934	1.9
Wales	12.5	18,640	16,800	1.25
REGION				
Inner London	16.4	24,735	23,461	1.7
Outer London	15.1	35,811	34,189	2
South West	12	30,258	28,747	1.8
South East	12.3	53,141	50,099	1.8
East	12.1	34,745	32,564	2

Q30 What percent of births are male across the 5 Regions shown?

(A) 49.5%
(B) 50%
(C) 50.5%
(D) 51%
(E) 51.4%

Step 1 *– Calculate the total number of male births*
24,735 + 35,811 +30,258 + 53,141 + 34,745 = 178,690

Step 2 *– Calculate the total births*
178690 + 23,461 + 34,189 + 28,747 + 50,099 + 32,564 = 347,750

Step 3 *– Put into a %*
100% x (178,690/347,750) = 51.4%

Thus the correct answer is (E) 51.4%

NUMERICAL REASONING TEST 11

Instructions

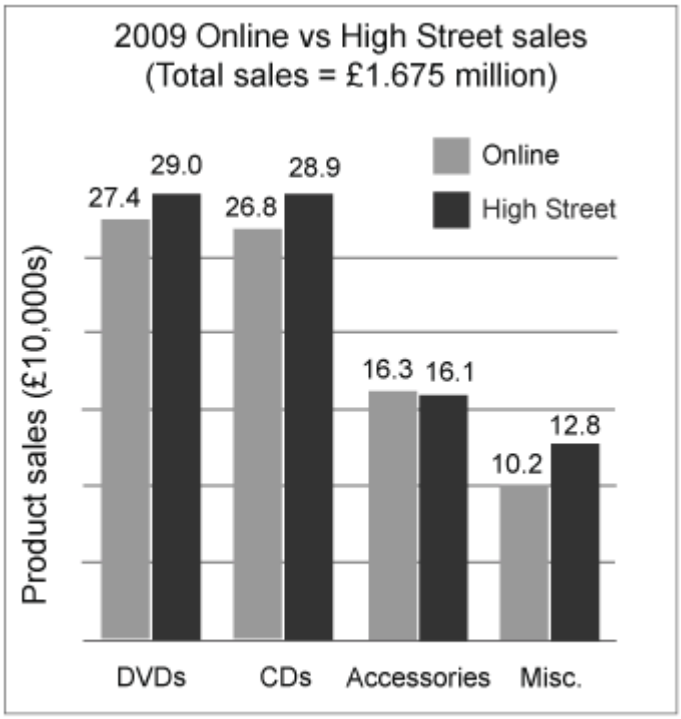
This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

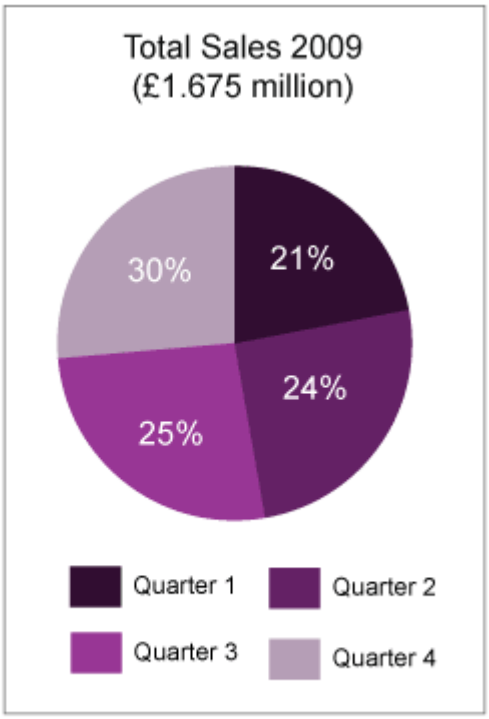
In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**





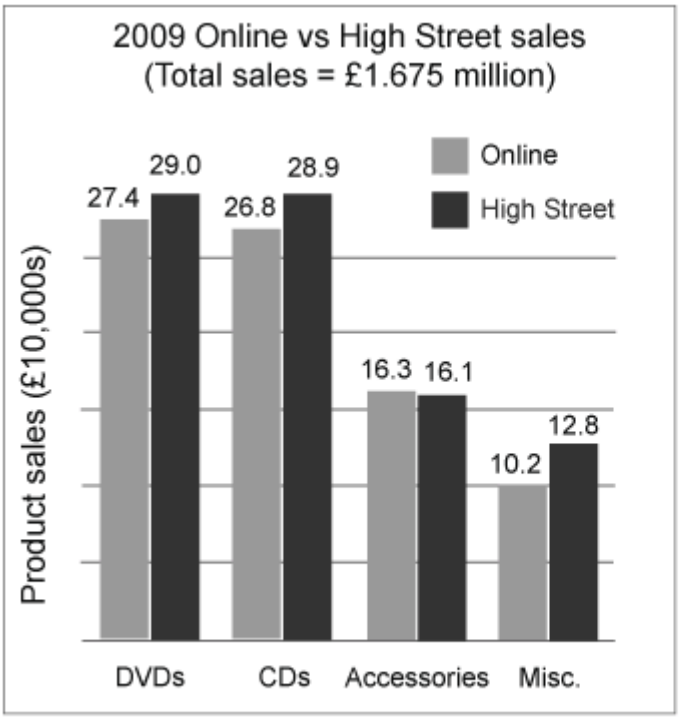
Q1 What are the combined sales of quarters 1 and 4?

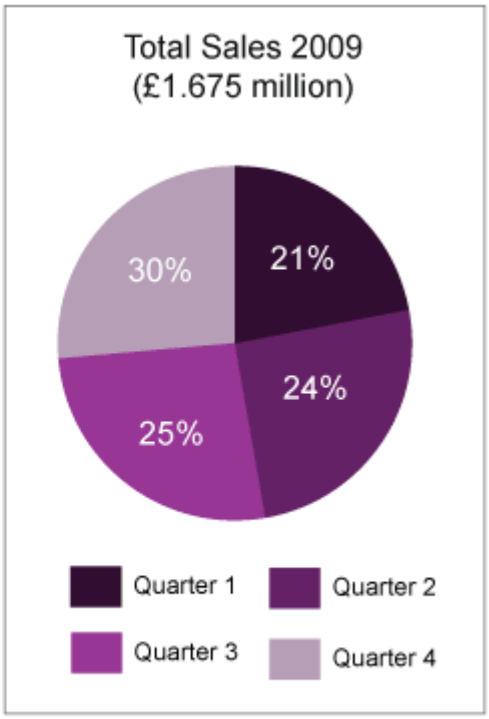
(A) £850,000
(B) £852,250
(C) £854,250
(D) £856,000
(E) £858,000

The information that I need is shown in the pie-chart.
Step 1 *– Calculate the total % for quarters 1 and 4*
21% + 30% = 51%

Step 2 *– £1.675 million x 51% = £854,250*

Thus the correct answer is (C) £854,250





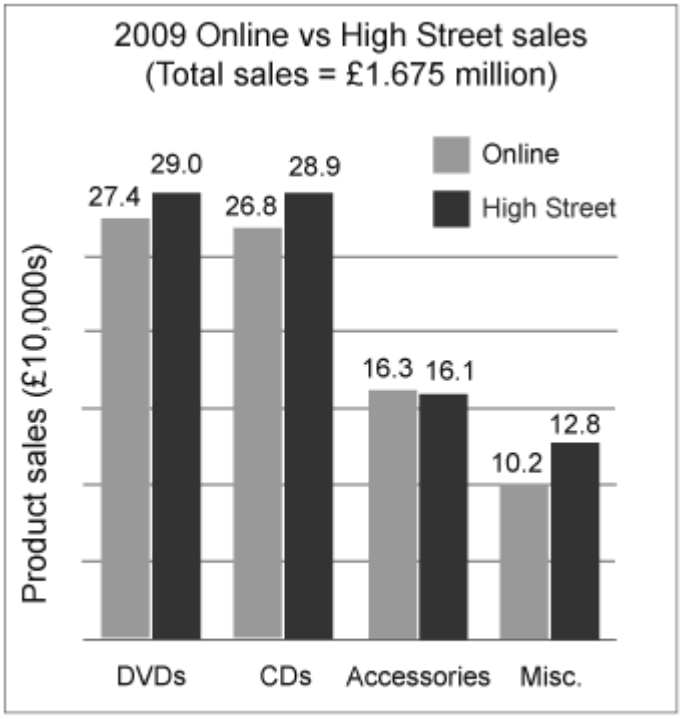
Q2 If the profit margin for online sales is 1/8th of the sales value, what was the total profit for online sales in 2009?

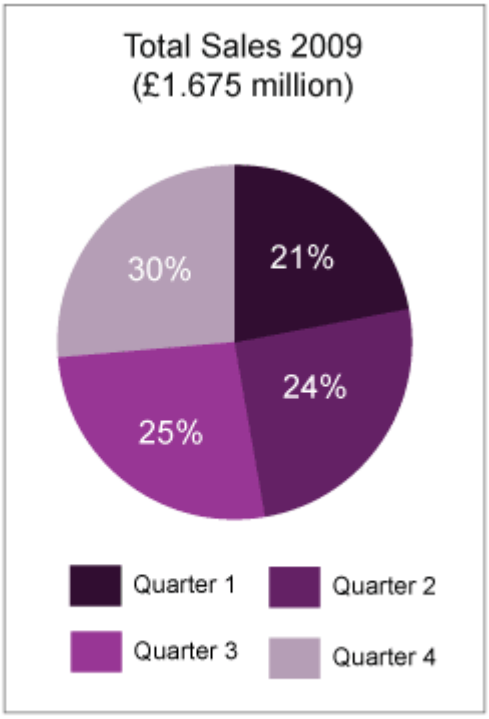
(A) £460,850
(B) £11,175
(C) £100,875
(D) £80,750
(E) £81,500

The information you need is shown in the graph Online vs High Street sales

Step 1 - *Calculate total online sales = 27.4 + 26.8 + 16.3 + 10.2 = 80.7 (£10,000s)*
Profit to sales ratio = 1:8, so profit = 80.7/8 = 10.0875 (£10,000s)

Thus the correct answer is (C) £100,875





Q3 What is the difference in sales between the best and worst performing quarters?

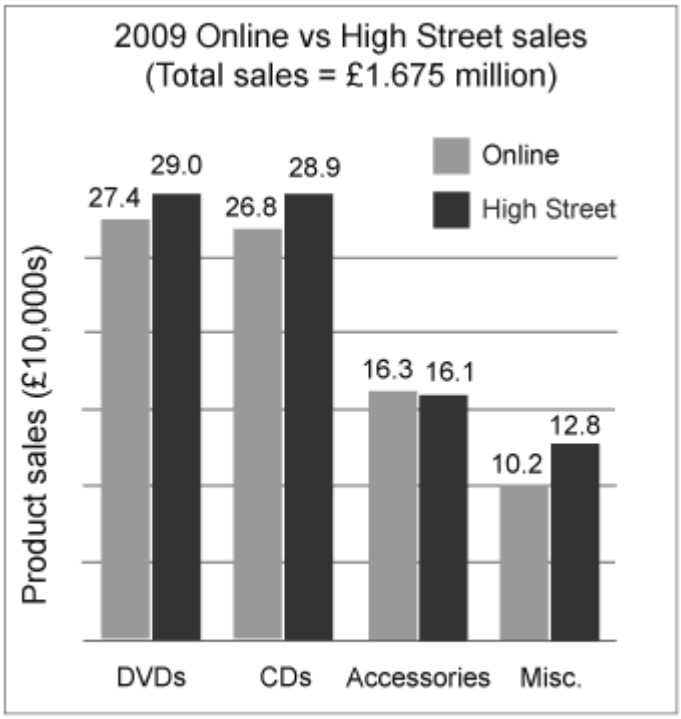
(A) £335,000
(B) £83,750
(C) £418,750
(D) £150,750
(E) None of these

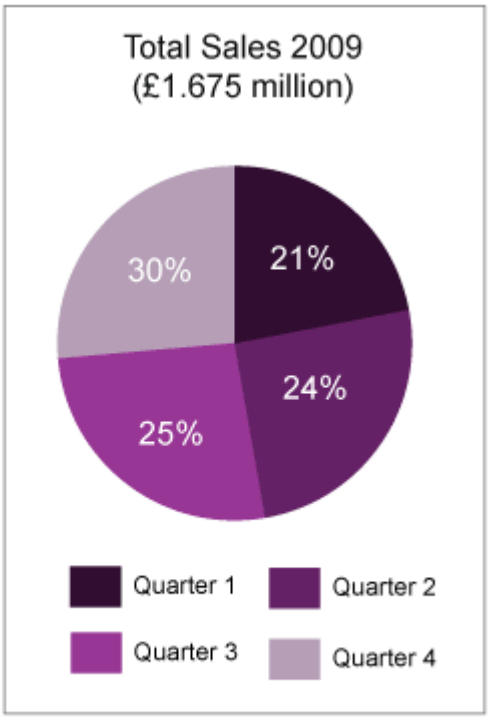
The most profitable and least profitable quarters are going to be those with the highest and lowest % sales respectively.

Step 1 *– Calculate the difference in these %'s*
30% - 21% = 9%

Step 2 *– Calculate the % of total sales*
9% x £1.675 million = £150,750

Thus the correct answer is (D) £150,750





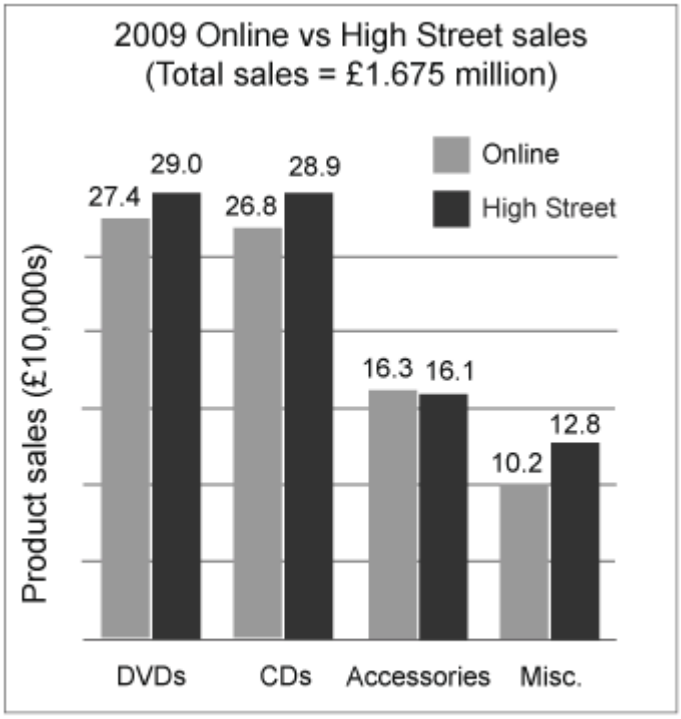
Q4 What was the difference between Online and High Street sales (in £10,000s)?

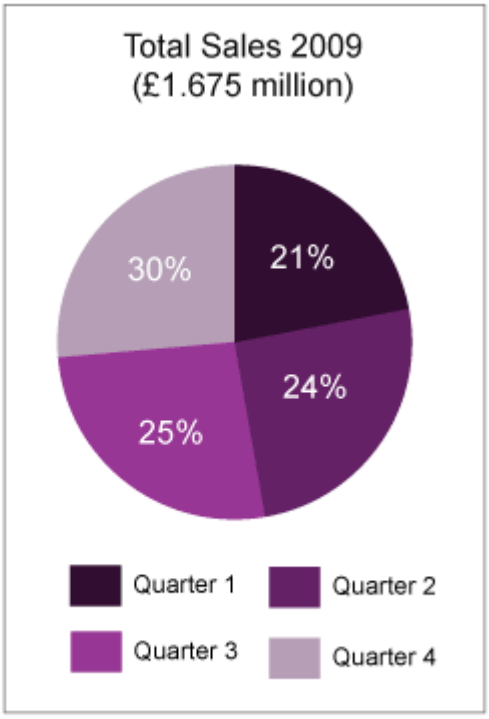
(A) 6.1
(B) 6.8
(C) 2.9
(D) 6.9
(E) 2.8

Step 1 *– Calculate the total sales for each*
High Street sales = 29 + 28.9 + 16.1 + 12.8 = 86.8
Online sales = 27.4 + 26.8 + 16.3 + 10.2 = 80.7

Step 2 *– Calculate the difference*
Difference = 86.8 – 80.7 = 6.1. Remember these numbers are in £10,000 as stated in the graph.

Thus the correct answer is (A) 6.1





Q5 In 2010 there is a High Street CD and DVDs sale that results in an increase in the annual 2009 sales of each category by 11% and 14.5% respectively. What are the combined High Street DVD and CD sales for 2010?

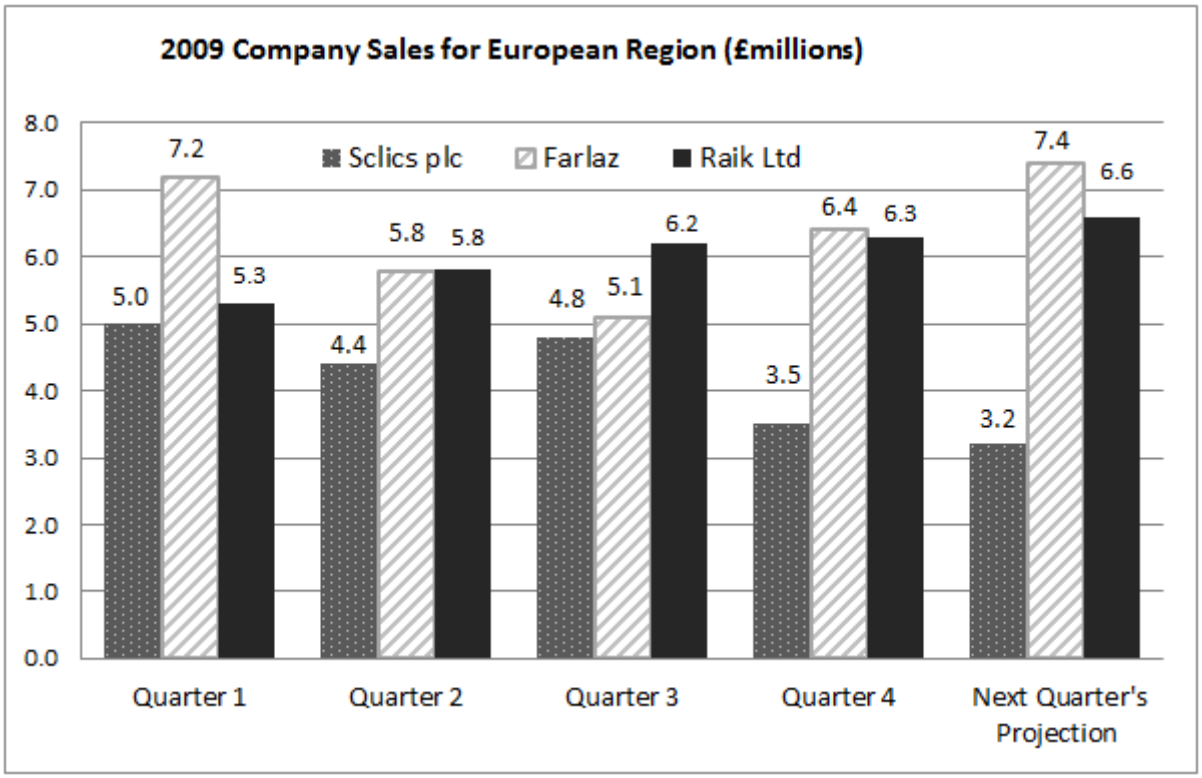
(A) £480,500
(B) £514,118
(C) £652,840
(D) £0.56 million
(E) £65.4 million

Step 1 *– Calculate the % increases in each category*
High Street CD (2010) = 2009 sales + 11% = 28.9 x 1.11 = 32.079
High Street DVD (2010) = 2009 sales + 14.5% = 29 x 1.145 = 33.205

Step 2 *– Calculate the total*
32.079 + 33.205 = £65.284 (10,000)

Step 3 *- £652,840*

Thus the correct answer is (C) £652,840

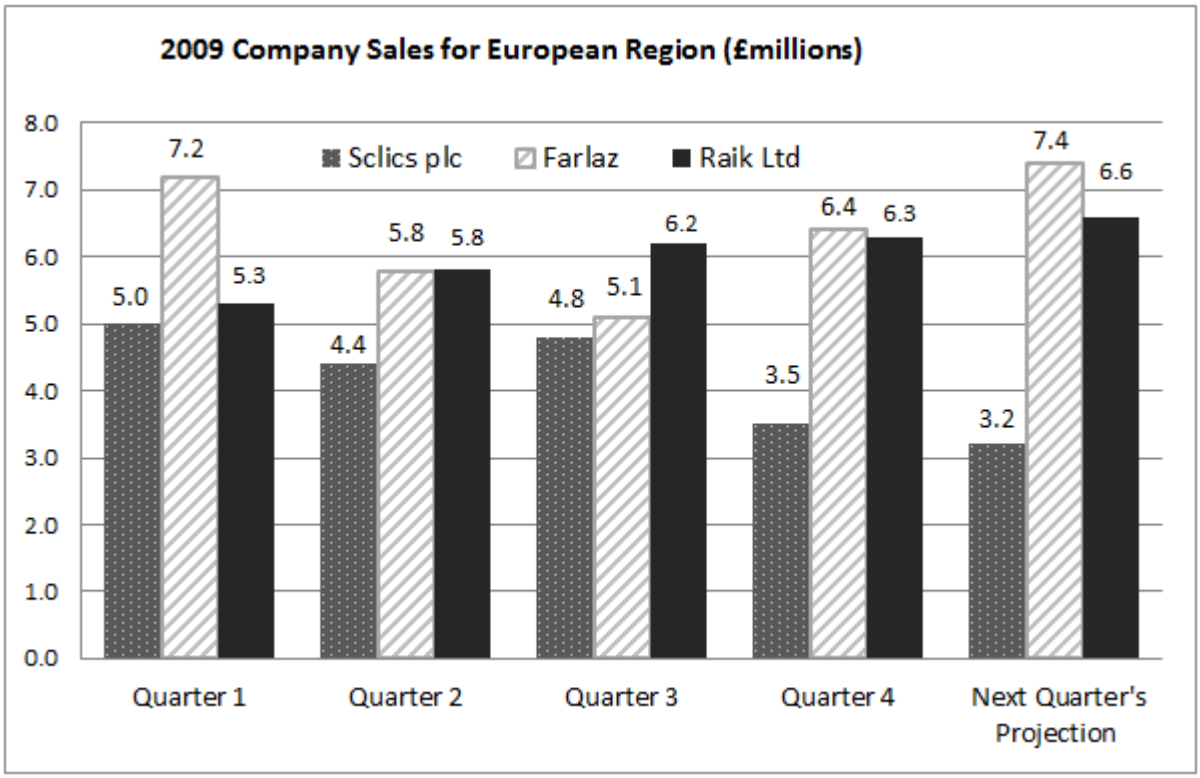


Q6 In which quarter did Sclics plc, Farlaz and Raik Ltd each experience an increase in sales for the European Region?

(A) Quarter 1
(B) Quarter 2
(C) Quarter 3
(D) Quarter 4
(E) None of these

Step 1 - *From looking at the graph, there is no quarter in which Sclics plc, Farlaz and Raik Ltd each experience an increase. In quarter 3 Sclics plc and Raik Ltd experience increases, but Farlaz does not.*

Thus the correct answer is (E) 'None of these'



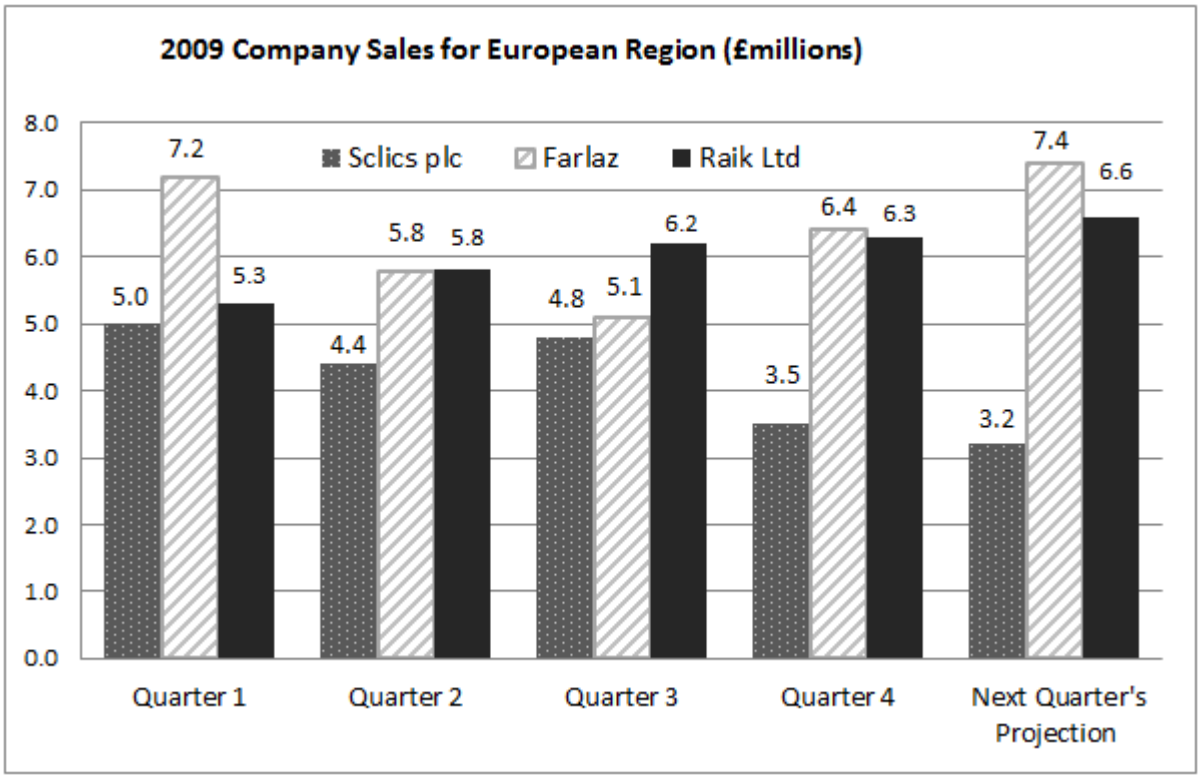
Q7 If the annual European sales for Raik Ltd represent 45% of worldwide sales, what is the level of sales worldwide?

(A) £62.5 million
(B) £52.4 million
(C) £42.6 million
(D) £28.8 million
(E) £23.6 million

Step 1 *– Calculate the annual sales for Raik Ltd*
5.3 + 5.8 + 6.2 + 6.3 = 23.6

Step 2 *– Calculate the worldwide sales*
100 x 23.6 / 45 = £52.4 million

Thus the correct answer is (B) £52.4 million



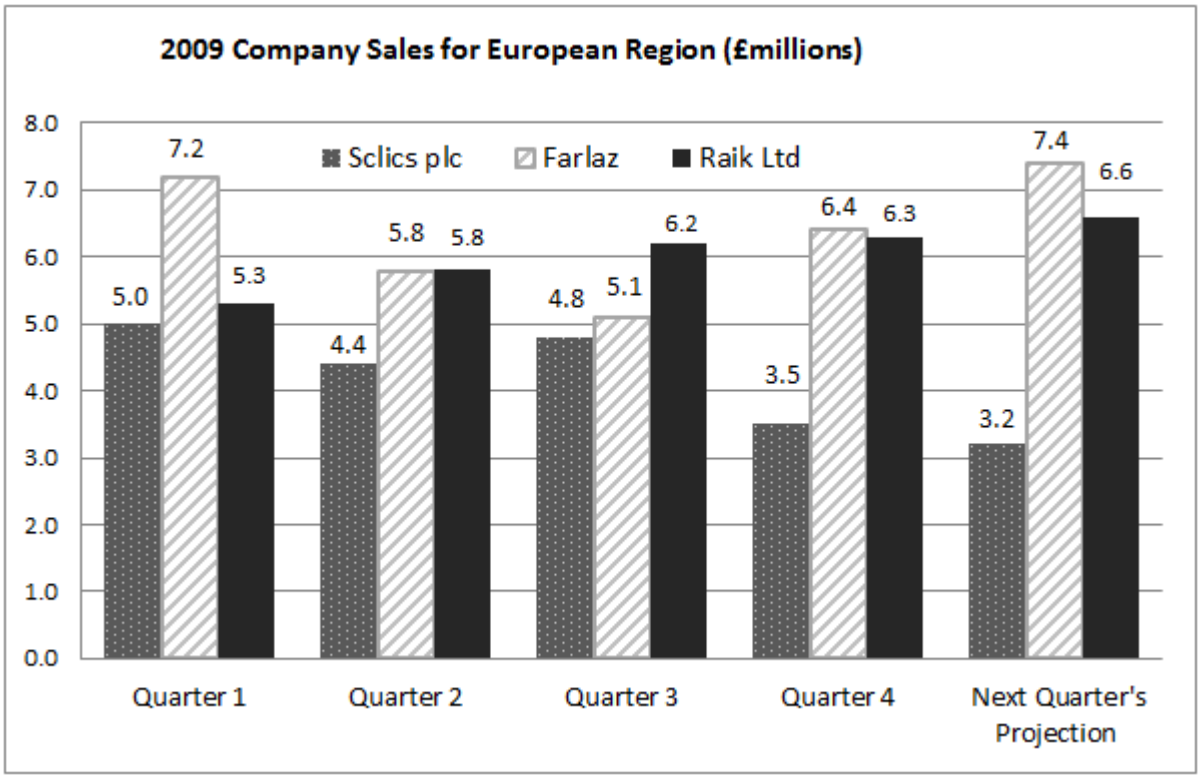
Q8 How much did Sclics plc's European sales in quarters 1 and 2 differ from Farlaz's European sales over the same period?

(A) £3.6 million more
(B) £3.6 million less
(C) £2.2 million less
(D) 2.2 million more
(E) None of these

Step 1 *- Calculate the Q1 and Q2 differences*
Q1; 5 – 7.2 = 2.2 less
Q2; 4.4 – 5.8 = 1.4 less

Step 2 *– Calculate the total difference 2.2+ 1.4 = £3.6 million*

Thus the correct answer is (B) £3.6 million less



Q9 If the annual sales target for Raik Ltd was £29.5 million, by what fraction of this target did the company underperform?

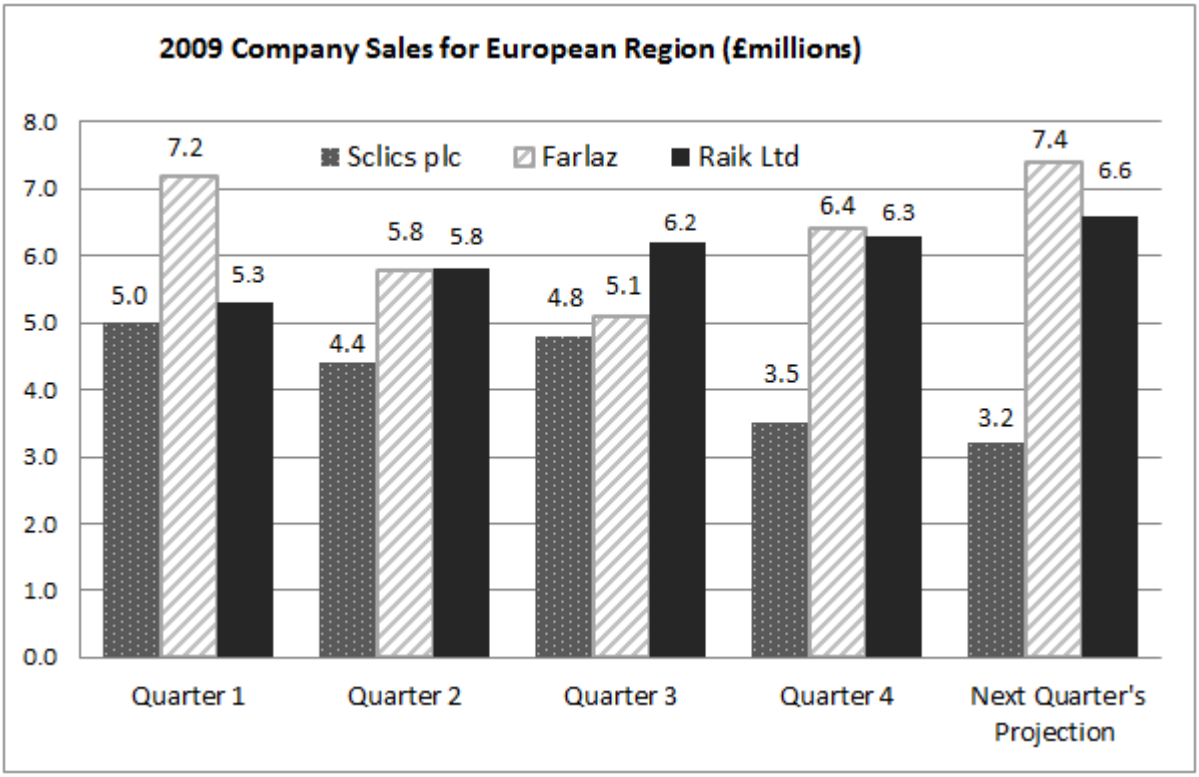
(A) 2/3
(B) 1/5
(C) 1/3
(D) 1/2
(E) 1/4

Step 1 *– Refer to your own rough notes for the annual sales for Raik Ltd (from question 7) = 23.6 (£millions)*

Step 2 *– Calculate the difference compared to the annual sales target*
29.5 – 23.6 = 5.9

Step 3 *– Calculate the fraction*
5.9 / 29.5 = 1/5

Thus the correct answer is (B) 1/5



Q10 Next quarter's total sales projection represents what increase on Quarter 4's total sales for the three companies shown (to the nearest whole %)?

(A) 6.1%
(B) 7.2%
(C) 6.2%
(D) 10%
(E) 6%

Step 1 *– Calculate Quarter 4's total*
3.5 + 6.4 + 6.3 = 16.2

Step 2 *– Calculate the Projected Quarter's total*
3.2 + 7.4 + 6.6 = 17.2

Step 3 *– Calculate the % increase*
17.2 / 16.2 = 106.17%. The question asks for this to be rounded to the nearest percent.

Thus the correct answer is (E) 6%

UK Operations of *Gills & Tines Ltd*	Full Year ended 31 December (£million)			
	2009	**2008**	**2007**	**2006**
Income Sources				
Net interest	325.2	309.5	319.7	313.8
Other income	64.2	51.8	52	51.7
Fair value gains	18.0	39.9	29.7	31.1
Costs				
Admin costs	277.8	231	285.9	283.5
Loan impairment costs	15.0	57.8	6.1	5.9
Profit Before Tax	**114.6**	**112.4**	**109.4**	**107.2**

Q11 What was the average annual income across the four years shown (to the nearest million)?

(A) £408 million
(B) £407 million
(C) £402 million
(D) £403 million
(E) £404 million

Step 1 *– Calculate the annual income for each year*

Income	***2009***	***2008***	***2007***	***2006***
Net interest	*325.2*	*309.5*	*319.7*	*313.8*
Other income	*64.2*	*51.8*	*52*	*51.7*
Fair value gains	*18*	*39.9*	*29.7*	*31.1*
TOTALS	*407.4*	*401.2*	*401.4*	*396.6*

Step 2 *- Calculate the average by dividing the overall total for all 4 years by 4*
(407.4 + 401.2 + 401.4 + 396.6)/4 = 401.65

Step 3 *- To the nearest million = £402 million*

Thus the correct answer is (C) £402 million

UK Operations of *Gills & Tines Ltd*	Full Year ended 31 December (£million)			
	2009	**2008**	**2007**	**2006**
Income Sources				
Net interest	325.2	309.5	319.7	313.8
Other income	64.2	51.8	52	51.7
Fair value gains	18.0	39.9	29.7	31.1
Costs				
Admin costs	277.8	231	285.9	283.5
Loan impairment costs	15.0	57.8	6.1	5.9
Profit Before Tax	**114.6**	**112.4**	**109.4**	**107.2**

Q12 Gills & Tines Ltd's target has been to increase Profit Before Tax by more than 2% each year. In which year, or years, has this been achieved?

(A) 2008
(B) 2007, 2008
(C) 2007
(D) 2007, 2008, 2009
(E) None of the years shown

Step 1 *– Calculate the % change in Profit Before Tax as shown in bold below;*

2009	*2008*	*2007*
114.6	*112.4*	*109.4*
100% x (114.6 – 112.4)/112.4	*100% x (112.4 – 109.4)/109.4*	*100% x (109.4 – 107.2)/107.2*
= 1.96%	*= 2.74%*	*= 2.05%*

Thus the correct answer is (B) 2007, 2008

UK Operations of *Gills & Tines Ltd*	Full Year ended 31 December (£million)			
	2009	**2008**	**2007**	**2006**
Income Sources				
Net interest	325.2	309.5	319.7	313.8
Other income	64.2	51.8	52	51.7
Fair value gains	18.0	39.9	29.7	31.1
Costs				
Admin costs	277.8	231	285.9	283.5
Loan impairment costs	15.0	57.8	6.1	5.9
Profit Before Tax	**114.6**	**112.4**	**109.4**	**107.2**

Q13 Admin costs are projected to increase by a quarter in 2010 and Net Interest to increase by 2.5%, whilst all other costs and incomes are projected to remain constant. What is the projected Profit Before Tax for 2010 (in £million)?

(A) £53.28 million
(B) £69.45 million
(C) £113.2 million
(D) £144.6 million
(E) £118.9 million

Step 1 *– Calculate the increase in Admin costs*
277.8 x .25 = 69.45

Step 2 *– Calculate the increase in Net Interest*
325.2 x 2.5%/100 = 8.13

Step 3 *– Calculate the new Profit Before Tax using the 2009 Profit Before Tax as the starting point*
114.6 - 69.45 + 8.13 = 53.28

Thus the correct answer is (A) £53.28 million

UK Operations of *Gills & Tines Ltd*	Full Year ended 31 December (£million)			
	2009	**2008**	**2007**	**2006**
Income Sources				
Net interest	325.2	309.5	319.7	313.8
Other income	64.2	51.8	52	51.7
Fair value gains	18.0	39.9	29.7	31.1
Costs				
Admin costs	277.8	231	285.9	283.5
Loan impairment costs	15.0	57.8	6.1	5.9
Profit Before Tax	**114.6**	**112.4**	**109.4**	**107.2**

Q14 In which year did the combined Admin Costs and Loan Impairment Costs decrease in value?

(A) 2006
(B) 2007
(C) 2008
(D) 2009
(E) Cannot Say

Step 1 *- The total Admin Costs and Loan Impairment Costs are as follows:*

	2009	*2008*	*2007*	*2006*
Admin costs	*277.8*	*231*	*285.9*	*283.5*
Loan impairment costs	*15*	*57.8*	*6.1*	*5.9*
TOTALS	*292.8*	*288.8*	*292*	*289.4*

Thus the correct answer is (C) 2008

UK Operations of *Gills & Tines Ltd*	Full Year ended 31 December (£million)			
	2009	**2008**	**2007**	**2006**
Income Sources				
Net interest	325.2	309.5	319.7	313.8
Other income	64.2	51.8	52	51.7
Fair value gains	18.0	39.9	29.7	31.1
Costs				
Admin costs	277.8	231	285.9	283.5
Loan impairment costs	15.0	57.8	6.1	5.9
Profit Before Tax	**114.6**	**112.4**	**109.4**	**107.2**

Q15 If corporation tax of 21% was applied each year to the *Profit Before Tax,* what was the average net profit across 2006-2009?

(A) £110.9 million
(B) £114.6 million
(C) £115.6 million
(D) £86.4 million
(E) £87.6 million

Step 1 *– Calculate the average Profit Before Tax across 2006-2009*
(114.6 + 112.4 + 109.4 +107.2)/4 = 110.9

Step 2 *– Deduct the 21% tax*
110.9 x 79%/100 = £87.6 million

Thus the correct answer is (E) £87.6 million

	Hours spent (March)				
	Team A	*Team B*	*Team C*	*Team D*	*Team E*
Admin tasks	33	42	25	19	21
Client work	402	370	419	434	404
Training	3	6	3	4	5
Meetings	40	72	32	18	56

Q16 What was the total number of days spent on Client work in March using the formula 1 day = 7 working hours (to the nearest whole day)?

(A) 300 days
(B) 290 days
(C) 280 days
(D) 270 days
(E) 260 days

Step 1 *– Calculate the total hours spent*
402 + 370 + 419 + 434 + 404 = 2029

Step 2 *– Calculate the total days spent*
2029 / 7 = 289.9 days

Thus the correct answer is (B) 290 days

	Hours spent (March)				
	Team A	*Team B*	*Team C*	*Team D*	*Team E*
Admin tasks	33	42	25	19	21
Client work	402	370	419	434	404
Training	3	6	3	4	5
Meetings	40	72	32	18	56

Q17 If there were 3 members within Team B, what was the average number of hours spent on non-client work during March?

(A) 37hours
(B) 38 hours
(C) 39 hours
(D) 40 hours
(E) 41 hours

Step 1 *– Calculate the number of non-client hours*
42 + 6 + 72 = 120

Step 2 *– Divide by the 3 team members*
120 / 3 = 40 hours

Thus the correct answer is (D) 40 hours

	Hours spent (March)				
	Team A	*Team B*	*Team C*	*Team D*	*Team E*
Admin tasks	33	42	25	19	21
Client work	402	370	419	434	404
Training	3	6	3	4	5
Meetings	40	72	32	18	56

Q18 If Teams A-C bill clients at £75 per hour and less experienced Teams D and E bill clients at £55 per hour, what is the total client income for March (to the nearest £1,000)?

(A) £127,000
(B) £129,000
(C) £131,000
(D) £133,000
(E) £135,000

Step 1 *– Calculate the client bill for Teams A-C*
£75 x (402 + 370 +419) = £89,325

Step 2 *– Calculate the client bill for Teams D and E*
£55 x (434 + 404) = £46,090

Step 3 *– Calculate the total client bill*
£89,325 + £46,090 = £135,000 (to the nearest £1,000)

Thus the correct answer is (E) £135,000

	Hours spent (March)				
	Team A	*Team B*	*Team C*	*Team D*	*Team E*
Admin tasks	33	42	25	19	21
Client work	402	370	419	434	404
Training	3	6	3	4	5
Meetings	40	72	32	18	56

Q19 If the monthly summary shown is representative of the time typically spent each month over the course of a year (1 year = 12 months) then how many days (1 day = 8 working hours) do Teams A-E spend in meetings over the course of a year?

(A) 327 days
(B) 357 days
(C) 347 days
(D) 337 days
(E) 367 days

Step 1 *– Calculate the total time spent in meetings in March*
40 + 72 + 32 + 18 + 56 = 218 hours

Step 2 *– Calculate the time per year*
218 x 12 = 2616 hours

Step 3 *– Put this figure into days*
2616 / 8 = 327 days

Thus the correct answer is (A) 327 days

	Hours spent (March)				
	Team A	*Team B*	*Team C*	*Team D*	*Team E*
Admin tasks	33	42	25	19	21
Client work	402	370	419	434	404
Training	3	6	3	4	5
Meetings	40	72	32	18	56

Q20 Put the teams in increasing order of total hours worked in March (starting with the lowest number of total hours worked).

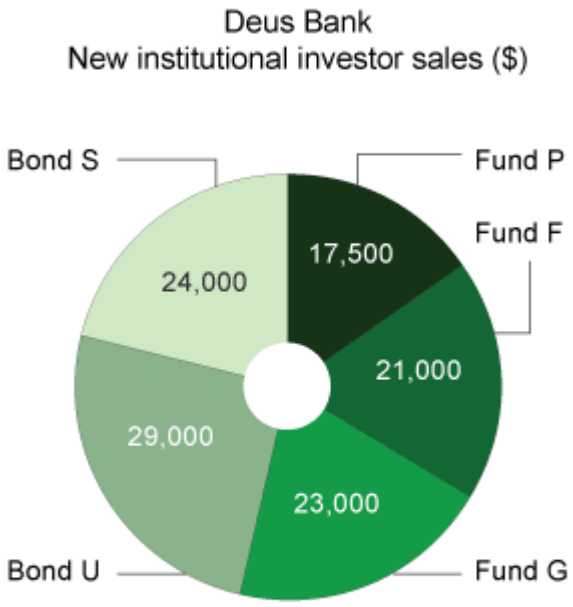
(A) D, A, C, B, E
(B) C, B, A, E, D
(C) D, A, C, E, B
(D) A, D, E, C, B
(E) A, D, C, E, B

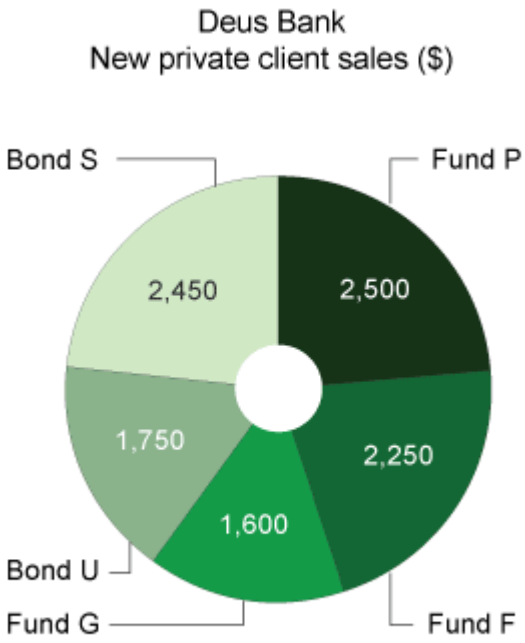
Step 1 *- Calculate the total hours worked;*

Team A	*Team B*	*Team C*	*Team D*	*Team E*
478	*490*	*479*	*475*	*486*

Step 2 *- Put teams into order of increasing numbers of hours worked.*

Thus the correct answer is (C) D, A, C, E, B



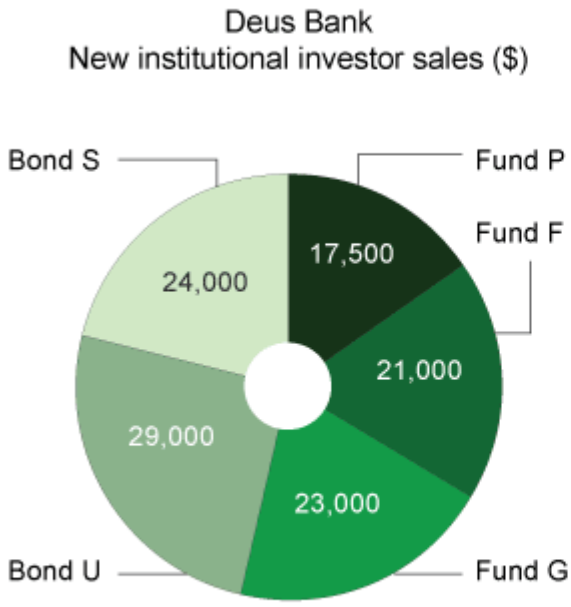


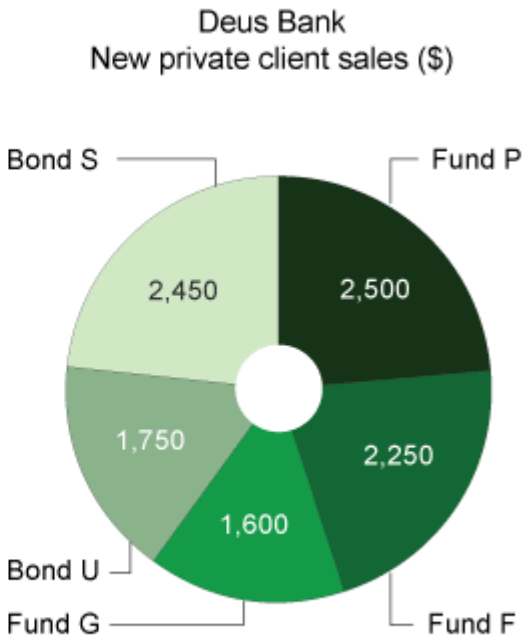
Q21 How much did Deus Bank income from new institutional investors differ from that of new private clients?

(A) $85,250
(B) $106,950
(C) $109,500
(D) $103,950
(E) $114,500

Step 1 *- Calculate the totals*
114,500 – 10,550 = 103,950

Thus the correct answer is (D) $103,950



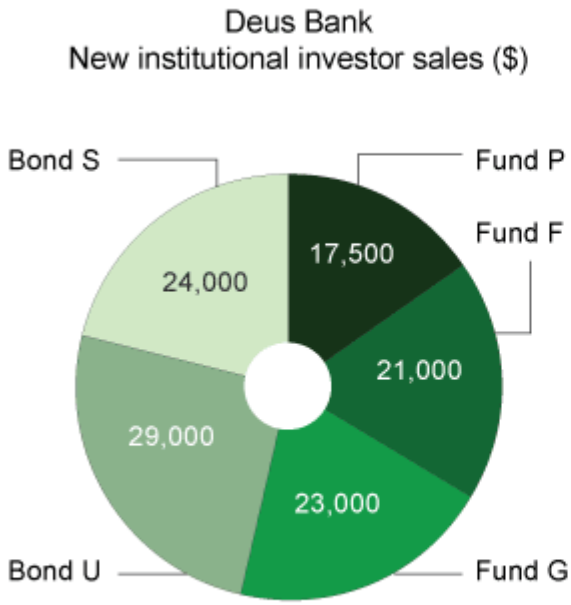


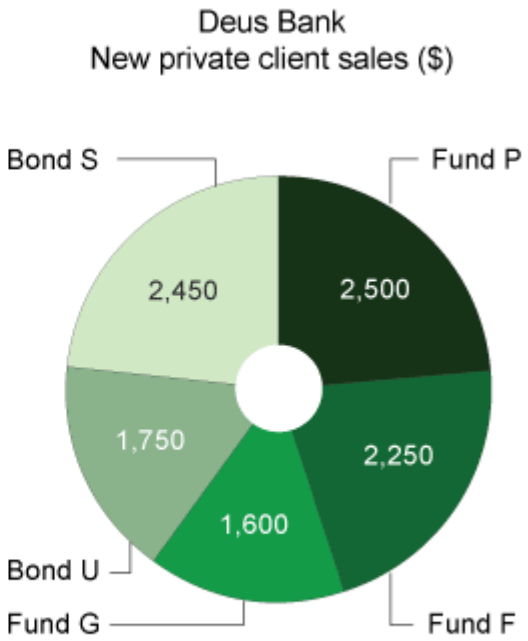
Q22 What is the ratio of Fund P's sales to new private clients compared to new institutional investors?

(A) 1:4
(B) 1:5
(C) 1:6
(D) 1:7
(E) 1:8

Step 1 *- Put the figures into a ratio*
2,500 : 17,500 = 1:7

Thus the correct answer is (D) 1:7





Q23 What are Deus Bank's total new private client and institutional investor Fund sales (in £s) at an exchange rate of $1.55 to the £?

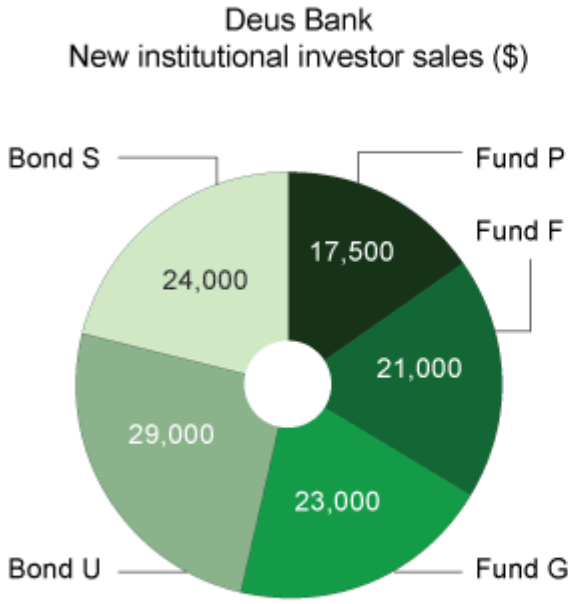
(A) £73,871
(B) £193,827
(C) £80,677
(D) £177,475
(E) £43,774

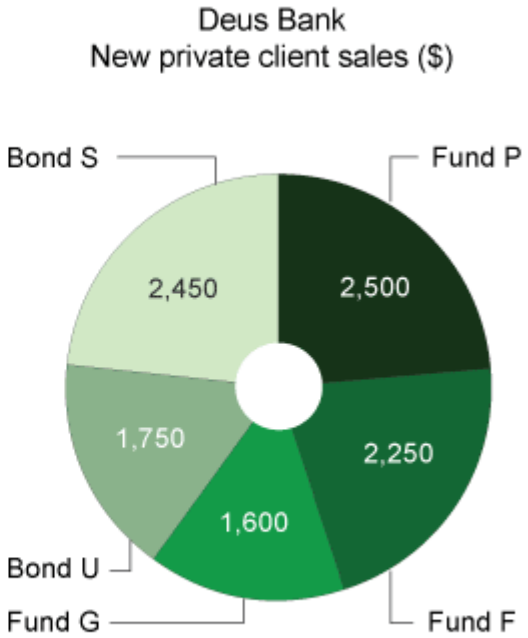
Tip: make sure you don't include sales from Bonds; the question asks for Fund sales only.

Step 1 *– Total the Fund sales for new institutional investors and private client*
(17,500 + 21,000 + 23,000) + (2,500 + 2,250 + 1,600) = $67,850

Step 2 *– Apply the exchange rate of $1.55 to the £*
$67,850 / 1.55 = £43,774.2

Thus the correct answer is (E) £43,774





Q24 Deus Bank pays 6% and 8% commission on Bond U and Bond S sales

respectively over $15,000. How much commission is paid for new Bond U and Bond S sales (across both private clients and institutional investors)?

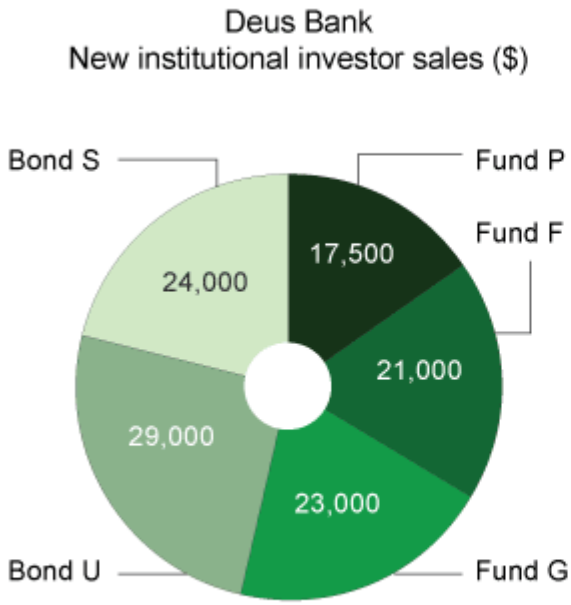
(A) $1,750
(B) $2,505
(C) $1,560
(D) $2,103
(E) $1,861

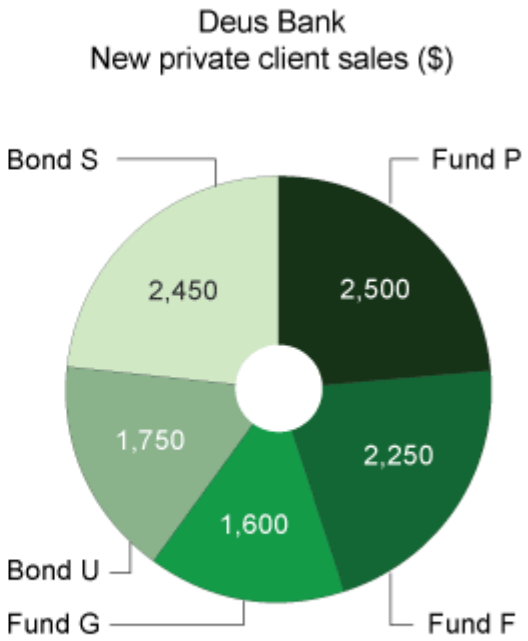
Step 1 *– Calculate the total Bond U and Bond S sales*
Bond U = 30,750
Bond S = 26,450

Step 2 *– Deduct $15,000 from each*
Bond U = 30,750 – 15,000 = $15,750
Bond S = 26,450 – 15,000 = $11,450

Step 3 *– Calculate commissions*
$15,750 x 6% =$945
$11,450 x 8% = $916
Total commission = $1,861

Thus the correct answer is (E) $1,861





Q25 What % of total new private client and new institutional investor sales do Bond U sales represent (to the nearest %)?

(A) 21%
(B) 22%
(C) 23%
(D) 24%
(E) 25%

Step 1 *- Calculate the % of Bond U sales compared to total sales for new institutional investor sales and new private client sales, as shown below:*

	New institutional investor sales	*Private client sales*	*Total*	*% of total (125050)*
Fund P	*17500*	*2500*	*20000*	*16%*
Fund F	*21000*	*2250*	*23250*	*19%*
Fund G	*23000*	*1600*	*24600*	*20%*
Bond U	*29000*	*1750*	*30750*	***25%***
Bond S	*24000*	*2450*	*26450*	*21%*

Thus the correct answer is (E) 25%

	2009 (£million)	2008 (£million)	2007 (£million)
Assets at end of financial year			
Liquid Assets	10,214	11,300	10,735
Loans Made	24,600	23,130	21,974
Derivatives	512	540	513
Fixed Assets	614	570	542
Total Assets	35,940	35,540	33,763
Liabilities at end of financial year			
Reserve Liabilities	111.6	124.0	132
Borrowings	1,389.6	1,544.0	1,650
Share Liabilities	1,958.0	1,628.0	1,780
Other Liabilities	41.8	35.0	38
Total Liabilities	3,501.0	3,331.0	3,600

Q26 What was the approximate fraction of Fixed Assets to Loans Made at the end of the financial year 2009?

(A) 1/40
(B) 1/45
(C) 1/20
(D) 1/60
(E) 1/48

Step 1 *- The fraction is 614 ÷ 24,600 ≈ 1/40.*

Tip - *You should be able to recognise that your calculator answer of 0.02496 is approximately ten times smaller than 0.25 and thus from the available answers select 1/40.*

Thus the correct answer is (A) 1/40

	2009 (£million)	2008 (£million)	2007 (£million)
Assets at end of financial year			
Liquid Assets	10,214	11,300	10,735
Loans Made	24,600	23,130	21,974
Derivatives	512	540	513
Fixed Assets	614	570	542
Total Assets	35,940	35,540	33,763
Liabilities at end of financial year			
Reserve Liabilities	111.6	124.0	132
Borrowings	1,389.6	1,544.0	1,650
Share Liabilities	1,958.0	1,628.0	1,780
Other Liabilities	41.8	35.0	38
Total Liabilities	3,501.0	3,331.0	3,600

Q27 Which asset or assets have changed in value by more than 12% from 2007 to 2009?

(A) Liquid Assets, Loans Made
(B) Loans Made, Fixed Assets
(C) Loans Made
(D) Fixed Assets
(E) Can't tell from data

Step 1 *- Calculate the % change in asset values, as shown below. Work out the figures for only the options given, to save time.*

Assets at end of financial year	*2009 (£million)*	*2007 (£million)*	*Difference*	*% change*
Liquid Assets	*10214*	*10735*	*521*	*- 4.85*
Loans Made	*24600*	*21973.5*	*2626.5*	*11.95*
Fixed Assets	*614*	*541.5*	*72.5*	*13.39*

Thus the correct answer is (D) Fixed Assets

	2009 (£million)	2008 (£million)	2007 (£million)
Assets at end of financial year			
Liquid Assets	10,214	11,300	10,735
Loans Made	24,600	23,130	21,974
Derivatives	512	540	513
Fixed Assets	614	570	542
Total Assets	35,940	35,540	33,763
Liabilities at end of financial year			
Reserve Liabilities	111.6	124.0	132
Borrowings	1,389.6	1,544.0	1,650
Share Liabilities	1,958.0	1,628.0	1,780
Other Liabilities	41.8	35.0	38
Total Liabilities	3,501.0	3,331.0	3,600

Q28 In 2010, Loans Made are projected to decrease by an eighth and both Derivatives and Fixed Assets are projected to increase by 5%. If other values stay the same what will be the impact on the 2010 Total Assets value (in £million)?

(A) 3,075.70 increase
(B) 3,018.70 decrease
(C) 3,000.00 decrease
(D) 3,095.70 decrease
(E) Can't tell from data

Step 1 *- Calculate the changes in 2009 figures for Loans Made; and both Derivatives and Fixed Assets*
Loans made; 24,600 / 8 = - 3,075
Derivatives; 512 x 5% = + 25.6
Fixed Assets; 614 x 5% = + 30.7

Step 2 *- Calculate the overall impact*
-3075 (Loans Made) + 25.6 (Derivatives) + 30.7 (Fixed Assets) = - 3,018.7

Thus the correct answer is (B) 3,018.70 decrease

	2009 (£million)	2008 (£million)	2007 (£million)
Assets at end of financial year			
Liquid Assets	10,214	11,300	10,735
Loans Made	24,600	23,130	21,974
Derivatives	512	540	513
Fixed Assets	614	570	542
Total Assets	35,940	35,540	33,763
Liabilities at end of financial year			
Reserve Liabilities	111.6	124.0	132
Borrowings	1,389.6	1,544.0	1,650
Share Liabilities	1,958.0	1,628.0	1,780
Other Liabilities	41.8	35.0	38
Total Liabilities	3,501.0	3,331.0	3,600

Q29 Which liability or liabilities have experienced a 10% change in value between 2008 and 2009?

(A) Reserve Liabilities
(B) Borrowings, Reserve Liabilities
(C) Borrowings
(D) Other Liabilities, Borrowings
(E) Other liabilities, Share liabilities

Step 1 *- Calculate the % change in value between 2008-2009, as follows;*

	2009	*2008*	*% change*
Reserve Liabilities	*111.6*	*124*	*-10%*
Borrowings	*1389.6*	*1544*	*-10%*
Share Liabilities	*1958*	*1628*	*20%*
Other Liabilities	*41.8*	*35*	*19%*

Thus the correct answer is (B) Borrowings, Reserve Liabilities

	2009 (£million)	2008 (£million)	2007 (£million)
Assets at end of financial year			
Liquid Assets	10,214	11,300	10,735
Loans Made	24,600	23,130	21,974
Derivatives	512	540	513
Fixed Assets	614	570	542
Total Assets	35,940	35,540	33,763
Liabilities at end of financial year			
Reserve Liabilities	111.6	124.0	132
Borrowings	1,389.6	1,544.0	1,650
Share Liabilities	1,958.0	1,628.0	1,780
Other Liabilities	41.8	35.0	38
Total Liabilities	3,501.0	3,331.0	3,600

Q30 What is the ratio of Reserve Liabilities (2008); Reserve Liabilities (2007)?

(A) 132:124
(B) 13:12
(C) 12:13
(D) 31:33
(E) 31:32

Step 1 *- Put the figures into a ratio:*
124:132 = 31:33

Thus the correct answer is (D) 31:33

NUMERICAL REASONING TEST 12

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

Commodity	Performance	Volatility	Liquidity	Forecast	Price per Tonne
Wheat	9	8	2	10	£104.70
Oats	2	2	6	4	£152.60
Rice	3	10	3	3	£224.10
Corn	1	10	9	5	£103.80
Soybeans	1	6	7	9	£173.30

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High	Maximum
1	2	3	4	5	6	7	8	9	10

Q1 You want to invest in the commodity with the highest combined rating of "Liquidity" and "Forecast". Which commodity should you invest in?

(A) Wheat
(B) Oats
(C) Rice
(D) Corn
(E) Soybeans
(F) None of the above

Step 1 *– Combine the ratings for "Liquidity" and "Forecast" and identify the largest combined rating.*

Wheat = 2 + 10 = 12
Oats = 6 + 4 = 10
Rice = 10 + 3 = 13
Corn = 8 + 5 = 14
Soybeans = 7 + 9 = 16

Thus the correct answer is (E) Soybeans

Commodity	Performance	Volatility	Liquidity	Forecast	Price per Tonne
Wheat	3	6	2	1	£204.90
Oats	10	4	2	4	£113.00
Rice	10	3	3	6	£219.20
Corn	5	9	10	7	£116.00
Soybeans	8	7	8	7	£279.20

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High	Maximum
1	2	3	4	5	6	7	8	9	10

Q2 You select the commodities with no ratings at or below "Very Low". Of the selected commodities, you choose the two cheapest per tonne. You then invest in the commodity with the fewest ratings at or below "Above Average". Which commodity do you invest in?

(A) Wheat
(B) Oats
(C) Rice
(D) Corn
(E) Soybeans
(F) None of the above

Step 1 *– Select the commodities with no ratings at or below "Very low"*

Wheat = 2 ratings at or below "Very Low"
Oats = 1 rating at or below "Very Low"
Rice = 0 ratings at or below "Very Low"
Corn = 0 ratings at or below "Very Low"
Soybeans = 0 ratings at or below "Very Low"

Step 2 *– Of the applicable commodities, select the two cheapest commodities per tonne.*

Rice = £219.20
Corn = £116.00
Soybeans = £279.20

Step 3 *– Of the applicable commodities, select the commodity with the fewest ratings at or below "Above Average"*

Rice = 3 ratings at or below "Above Average"
Corn = 1 rating at or below "Above Average"

Thus the correct answer is (D) Corn

Commodity	Performance	Volatility	Liquidity	Forecast	Price per Tonne
Wheat	3	6	2	1	£204.90
Oats	10	4	2	4	£113.00
Rice	10	3	3	6	£219.20
Corn	5	9	10	7	£116.00
Soybeans	8	7	8	7	£279.20

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High	Maximum
1	2	3	4	5	6	7	8	9	10

Q3 You only want to invest in a commodity with a "Liquidity" to "Forecast" ratings ratio of 1:1 or above. Which commodity do you invest in?

(A) Wheat
(B) Oats
(C) Rice
(D) Corn
(E) Soybeans
(F) None of the above

Step 1 *– Calculate the "Liquidity" to "Forecast" ratio for each commodity and identify the commodity with a ratio of 1:1 or above.*

Wheat = 8 / 10 = 0.8
Oats = 7 / 4 = 1.75
Rice = 7 / 10 = 0.7
Corn = 4 / 5 = 0.8
Soybeans = 1 / 9 = 0.9

Thus the correct answer is (B) Oats

Tip*: you could save time on this question simply by looking at the data and seeing which one has a Liquidity rating higher than a Forecast rating.*

Commodity	Performance	Volatility	Liquidity	Forecast	Price per Tonne
Wheat	3	6	2	1	£204.90
Oats	10	4	2	4	£113.00
Rice	10	3	3	6	£219.20
Corn	5	9	10	7	£116.00
Soybeans	8	7	8	7	£279.20

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High	Maximum
1	2	3	4	5	6	7	8	9	10

Q4 Of the commodities with a "Price per Tonne" lower than £200, you select the commodity with the highest number of ratings between "Medium " and "High". Which commodity do you select?

(A) Wheat
(B) Oats
(C) Rice
(D) Corn
(E) Soybeans
(F) None of the above

Step 1 *– Identify the commodities with a "Price per Tonne" lower than £200*

Wheat = £164.20
Oats = £219.90
Rice = £241.30
Corn = £220.90
Soybeans = £180.30

Step 2 *– Of the applicable commodities, select the commodity with the highest number of ratings between "Medium" and "High".*

Wheat = 3 ratings between "Medium" and "High"
Soybeans = 1 rating between "Medium" and "High"

Thus the correct answer is (A) Wheat

Commodity	Performance	Volatility	Liquidity	Forecast	Price per Tonne
Wheat	3	6	2	1	£204.90
Oats	10	4	2	4	£113.00
Rice	10	3	3	6	£219.20
Corn	5	9	10	7	£116.00
Soybeans	8	7	8	7	£279.20

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High	Maximum
1	2	3	4	5	6	7	8	9	10

Q5 You want to invest in the commodity with both an average rating of "High" or more across all features, and a rating of at least "High" for "Performance". Which commodity do you invest in?

(A) Wheat
(B) Oats
(C) Rice
(D) Corn
(E) Soybeans
(F) None of the above

Step 1 *– Identify the commodities with an average rating of "High" across all features*

Wheat = (8 + 4 + 7 + 3) / 4 = 5.5
Oats= (10 + 6 + 6 + 3) / 4 = 6.25
Rice= (4 + 10 + 5 + 10) / 4 = 7.25
Corn= (1 + 1 + 4 + 2) / 4 = 2
Soybeans = (6 + 3 + 4 + 7) / 4 = 5

Step 2 *– Of the applicable commodities, identify the commodity with a rating of "High" or more for "Performance"*

Rice = rating of 4 for performance

Thus the correct answer is (F) None of the above

Commodity	Performance	Volatility	Liquidity	Forecast	Price per Tonne
Wheat	3	6	2	1	£204.90
Oats	10	4	2	4	£113.00
Rice	10	3	3	6	£219.20
Corn	5	9	10	7	£116.00
Soybeans	8	7	8	7	£279.20

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High	Maximum
1	2	3	4	5	6	7	8	9	10

Q6 You want to invest in the commodity with a "Price per Tonne" of less than £200 per Tonne, and with no ratings at or below "Low". Which commodity do you invest in?

(A) Wheat
(B) Oats
(C) Rice
(D) Corn
(E) Soybeans
(F) None of the above

Step 1 *– Identify the commodities with a "Price per Tonne" of less than £200*

Wheat = £191.90
Oats = £252.80
Rice = £215.90
Corn = £171.60
Soybeans = £270.60

Step 2 *– Of the applicable commodities, identify the commodities with no ratings at or below "Low"*

Wheat = 0 ratings at or below "Low"
Corn = 2 ratings at or below "Low"

Thus the correct answer is (A) Wheat

Commodity	Performance	Volatility	Liquidity	Forecast	Price per Tonne
Wheat	3	6	2	1	£204.90
Oats	10	4	2	4	£113.00
Rice	10	3	3	6	£219.20
Corn	5	9	10	7	£116.00
Soybeans	8	7	8	7	£279.20

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High	Maximum
1	2	3	4	5	6	7	8	9	10

Q7 You do not want to invest in a commodity with a "Performance" rating lower than its rating for "Forecast", a "Volatility" rating at or above "High", or a price per tonne of £200 or higher. Which commodity could you invest in?

(A) Wheat
(B) Oats
(C) Rice
(D) Corn
(E) Soybeans
(F) None of the above

Step 1 *– identify the commodities with "Performance" ratings higher than its "Forecast" ratings*

Wheat = 8 : 9
Oats = 9 : 8
Rice = 8 : 7
Corn = 7 : 9
Soybeans = 2 : 10

Step 2 *– Of the applicable commodities, identify the commodities with a "Volatility" rating below "High".*

Oats = 7
Rice = 8

Thus the correct answer is (F) None of the above

Commodity	Performance	Volatility	Liquidity	Forecast	Price per Tonne
Wheat	3	6	2	1	£204.90
Oats	10	4	2	4	£113.00
Rice	10	3	3	6	£219.20
Corn	5	9	10	7	£116.00
Soybeans	8	7	8	7	£279.20

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High	Maximum
1	2	3	4	5	6	7	8	9	10

Q8 You want to either invest in a commodity with no ratings at or below "Medium", or a commodity with an average "Performance" and "Liquidity" rating of "Above Average" or higher and a commodity with a "Price per Tonne" of £150 or lower. Which commodity do you invest in?

(A) Wheat
(B) Oats
(C) Rice
(D) Corn
(E) Soybeans
(F) None of the above

Step 1 *– Identify a commodity with no ratings at or below "Medium"*

Wheat = 2 ratings at or below "Medium"
Oats = 2 ratings at or below "Medium"
Rice = 1 rating at or below "Medium"
Corn = 2 ratings at or below "Medium"
Soybeans = 2 ratings at or below "Medium"

Step 2 *– Identify a commodity with an average "Performance" and "Liquidity" rating of "Above average" or higher.*

Wheat = (6 + 6) / 2 = 6
Oats = (5 + 8) / 2 = 6.5
Rice = (5 + 7) / 2 = 6
Corn = (10 + 1) / 2 = 5.5
Soybeans = (5 + 7) / 2 = 6

Step 3 *– Identify the commodity with a "Price per Tonne" lower than £150*

Wheat = £255.40
Oats = £259.20
Rice = £150.10
Corn = £190.30
Soybeans = £111.60

Thus the correct answer is (E) Soybeans

Commodity	Performance	Volatility	Liquidity	Forecast	Price per Tonne
Wheat	7	8	5	10	£111.00
Oats	9	8	1	9	£196.40
Rice	4	8	5	2	£143.80
Corn	10	6	6	6	£141.40
Soybeans	3	7	9	5	£283.40

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High	Maximum
1	2	3	4	5	6	7	8	9	10

Q9 You consider "Performance" to be 50% more important than "Forecast", which you consider to be 30% more important than either of the other two ratings. With this in mind, which commodity would have the highest weighted average across all four ratings?

(A) Wheat
(B) Oats
(C) Rice
(D) Corn
(E) Soybeans
(F) None of the above

Step 1 *– Increase the "Forecast" rating by 30% for each commodity*

Wheat = 10 x 1.3 = 13
Oats = 9 x 1.3 = 11.7
Rice = 2 x 1.3 = 2.6
Corn = 6 x 1.3 = 7.8
Soybeans = 5 x 1.3 = 6.5

Step 2 *– Increase the "Performance" rating by 30% and then 50% for each commodity*

Wheat = 7 x 1.3 x 1.5 = 13.65
Oats = 9 x 1.3 x 1.5 = 17.55
Rice = 4 x 1.3 x 1.5 = 7.8
Corn = 10 x 1.3 x 1.5 = 19.5
Soybeans = 3 x 1.3 x 1.5 = 5.85

Step 3 *– Calculate the weighted average across all four features, and identify the commodity with the largest average*

Wheat = (13.65 + 8 + 5 + 13) / 4 = 9.9125
Oats = (17.55 + 8 + 1 + 11.7) / 4 = 9.5625
Rice = (7.8 + 8 + 5 + 2.6) / 4 = 5.85
Corn = (19.5 + 6 + 6 + 7.8) / 4 = 9.825
Soybeans = (5.85 + 7 + 9 + 6.5) / 4 = 7.0875

Thus, the correct answer is (A) Wheat.

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Hotel	Comfort	Location	Service	Cleanliness	Price per Night
The Marmot	3	3	8	3	£117.00
Duchess and Rye	8	7	3	5	£86.00
El Pacifico	5	1	9	3	£64.00
Highway Inn	4	1	6	6	£116.00
Lanebrooke Spa	8	9	8	9	£97.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q10 You want to stay at the hotel with the second highest number of ratings larger than "Above Average". Which hotel should you stay at?

(A) The Marmot
(B) Duchess and Rye
(C) El Pacifico
(D) Highway Inn
(E) Lanebrooke Spa
(F) None of the above

Step 1 *– identify the hotel with the* <u>*second*</u> *highest number of ratings larger than "Above Average"*

The Marmot = 1 rating above "Above Average"
Duchess and Rye = 2 ratings above "Above Average"
El Pacifico = 1 rating above "Above Average"
Highway Inn = 0 ratings above "Above Average"
Lanebrooke Spa = 4 ratings above "Above Average"

Thus the correct answer is (B) Duchess and Rye

Hotel	Comfort	Location	Service	Cleanliness	Price per Night
The Marmot	3	3	8	3	£117.00
Duchess and Rye	8	7	3	5	£86.00
El Pacifico	5	1	9	3	£64.00
Highway Inn	4	1	6	6	£116.00
Lanebrooke Spa	8	6	8	9	£97.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q11 You first select the hotels with no ratings at "Very Low" or lower. You then select the hotels with "Comfort" ratings higher than their "Location" ratings. Of the remaining hotels, you select the cheapest. Which hotel do you select?

(A) The Marmot
(B) Duchess and Rye
(C) El Pacifico
(D) Highway Inn
(E) Lanebrooke Spa
(F) None of the above

Step 1 *– Select the hotels with no ratings at "Very Low" or lower*

The Marmot = 0 ratings at or below "Very Low"
Duchess and Rye = 0 ratings at or below "Very Low"
El Pacifico = 1 rating at or below "Very Low"
Highway Inn = 1 rating at or below "Very Low"
Lanebrooke Spa = 0 ratings at or below "Very Low"

Step 2 *– Of the applicable hotels, select the hotels with "Comfort" ratings higher than their "Location" ratings.*

The Marmot = 3 : 3
Duchess and Rye = 8 : 7
Lanebrooke Spa = 8 : 6

Step 3 *– Of the applicable hotels, select the cheapest*

Duchess and Rye = £86.00
Lanebrooke Spa = £97.00

Thus the correct answer is (B) Duchess and Rye

Hotel	Comfort	Location	Service	Cleanliness	Price per Night
The Marmot	3	3	8	3	£117.00
Duchess and Rye	8	7	3	5	£86.00
El Pacifico	5	1	9	3	£64.00
Highway Inn	4	1	6	6	£116.00
Lanebrooke Spa	8	6	8	9	£97.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q12 Hotel Luxor (not shown) has a “Location” to "Comfort" ratings ratio of 2:3.

Which hotels have a lower "Location" to "Comfort" ratio than Hotel Luxor?

(A) The Marmot and Duchess and Rye
(B) El Pacifico and Highway Inn
(C) Lanebrooke Spa and The Marmot
(D) El Pacifico and Lanebrooke Spa
(E) Duchess and Rye and Lanebrooke Spa
(F) None of the above

Step 1 *– Calculate the “Location” to “Comfort” ratio of each hotel, and identify the hotels with a ratio lower than that of Hotel Luxor (0.667).*

The Marmot = 3:3 = 1:1 (1.0)
Duchess and Rye = 7:5 (1.4)
El Pacifico = 1:5 (0.2)
Highway Inn = 1:4 (0.25)
Lanebrooke Spa = 9:8 (1.125)

Thus the correct answer is (B) El Pacifico and Highway Inn

Hotel	Comfort	Location	Service	Cleanliness	Price per Night
The Marmot	3	3	8	3	£117.00
Duchess and Rye	8	7	3	5	£86.00
El Pacifico	5	1	9	3	£64.00
Highway Inn	4	1	6	6	£116.00
Lanebrooke Spa	8	6	8	9	£97.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q13 Of the hotels with a "Location" rating at or above "High" you select the two hotels with the lowest "Price per Night". Of those two hotels, you select the hotel with the highest rating for "Comfort". Which hotel do you select?

(A) The Marmot
(B) Duchess and Rye
(C) El Pacifico
(D) Highway Inn
(E) Lanebrooke Spa
(F) None of the above

Step 1 *– Identify the hotels with "Location" ratings at or above "High"*

The Marmot = 3
Duchess and Rye = 7
El Pacifico = 8
Highway Inn = 1
Lanebrooke Spa = 9

Step 2 *– Of the applicable hotels, select the two with the lowest "Price per Night"*

Duchess and Rye = £86.00
El Pacifico = £64.00
Lanebrooke Spa = £97.00

Step 3 *– Of the applicable hotels, select the hotel with the highest rating for comfort.*

Duchess and Rye = 8
El Pacifico = 5

Thus the correct answer is (B) Duchess and Rye

Hotel	Comfort	Location	Service	Cleanliness	Price per Night
The Marmot	3	3	8	3	£117.00
Duchess and Rye	8	7	3	5	£86.00
El Pacifico	5	1	9	3	£64.00
Highway Inn	4	1	6	6	£116.00
Lanebrooke Spa	8	6	8	9	£97.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q14 Imagine that the most expensive hotel per night has a "Price" rating of "Extremely High", the least expensive hotel has a "Price" rating of "Extremely Low" and every other hotel has a "Price" rating of "Medium". With this in mind, which hotel has the highest overall rating across all 5 features?

(A) The Marmot
(B) Duchess and Rye
(C) El Pacifico
(D) Highway Inn
(E) Lanebrooke Spa
(F) None of the above

Step 1 *– Identify the "Price" ratings for each hotel based on the "Price per Night"*

The Marmot = £117.00 = Extremely High
Duchess and Rye = £86.00 = Medium
El Pacifico = £64.00= Extremely low
Highway Inn = £116.00 = Medium
Lanebrooke Spa = £97.00 = Medium

Step 2 *– Calculate the average based on the five ratings (including the new "Price" rating and identify the hotel with the highest rating.*

The Marmot = (3 + 3 + 8 + 3 + 9) / 5 = 5.2
Duchess and Rye = (8 + 7 + 3 + 5 + 5) / 5 = 5.6
El Pacifico = (5 + 1 + 9 + 3 + 1) / 5 = 3.8
Highway Inn = (4 + 1 + 6 + 6 + 5) / 5 = 4.4
Lanebrooke Spa = (8 + 9 + 8 + 9 + 5) / 5 = 7.8

Thus the correct answer is (E) Lanebrooke Spa

Hotel	Comfort	Location	Service	Cleanliness	Price per Night
The Marmot	3	3	8	3	£117.00
Duchess and Rye	8	7	3	5	£86.00
El Pacifico	5	1	9	3	£64.00
Highway Inn	4	1	6	6	£116.00
Lanebrooke Spa	8	6	8	9	£97.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q15 You want to stay at the hotel with the highest possible combined score on "Comfort" and "Service" while not paying more than £500 for five nights. Which hotel do you choose?

(A) The Marmot
(B) Duchess and Rye
(C) El Pacifico
(D) Highway Inn
(E) Lanebrooke Spa
(F) None of the above

Step 1 *– Identify the hotels which would cost less than £500 for five nights.*

The Marmot = £117.00 x 5 = £585
Duchess and Rye = £86.00 x 5 = £430
El Pacifico = £64.00 x 5 = £325
Highway Inn = £116.00 x 5 = £580
Lanebrooke Spa = £97.00 x 5 = £485

Step 2 *– Of the applicable hotels, select the hotel with the highest combined score on "Comfort" and "Service.*

Duchess and Rye = 8 + 3 = 11
El Pacifico = 5 + 9 = 14
Lanebrooke Spa = 8 + 8 = 16

Thus the correct answer is (E) Lanebrooke Spa

Hotel	Comfort	Location	Service	Cleanliness	Price per Night
The Marmot	3	3	8	3	£117.00
Duchess and Rye	8	7	3	5	£86.00
El Pacifico	5	1	9	3	£64.00
Highway Inn	4	1	6	6	£116.00
Lanebrooke Spa	8	6	8	9	£97.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q16 You do not want to stay at a hotel with a "Cleanliness" rating below "Medium", a "Location" rating lower than its "Comfort" rating, or a "Price per Night" above £150. Which hotel could you stay in?

(A) The Marmot
(B) Duchess and Rye
(C) El Pacifico
(D) Highway Inn
(E) Lanebrooke Spa
(F) None of the above

Step 1 *– Identify the hotels with a cleanliness rating at or above "Medium"*

The Marmot = 3
Duchess and Rye = 5
El Pacifico = 3
Highway Inn = 6
Lanebrooke Spa = 9

Step 2 *– Of the applicable hotels, identify the hotels with "Location" ratings higher than their "Comfort" ratings.*

Step 3 *–*
Duchess and Rye = 7 : 8
Highway Inn = 1 : 4
Lanebrooke Spa = 9 : 8

Step 3 *– Identify whether the applicable hotel has a "Price per night" lower than £150*

Lanebrooke Spa = £97.00

Thus the correct answer is (E) Lanebrooke Spa

Hotel	Comfort	Location	Service	Cleanliness	Price per Night
The Marmot	3	3	8	3	£117.00
Duchess and Rye	8	7	3	5	£86.00
El Pacifico	5	1	9	3	£64.00
Highway Inn	4	1	6	6	£116.00
Lanebrooke Spa	8	6	8	9	£97.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q17 You choose to stay at hotels with an average rating of "High" or greater across all features, or a "Price per Night" of £100 or lower, or a "Service" rating at extremely high. If you stay 1 night at each applicable Hotel, how much would you spend?

(A) £261.00
(B) £270.00
(C) £279.00
(D) £288.00
(E) £297.00
(F) None of the above

Step 1 *– Calculate the average rating across all features for each hotel and select the hotels with an average rating at or above "High"*

The Marmot = (3 + 3 + 8 + 3) / 4 = 4.25
Duchess and Rye = (8 + 7 + 3 + 5) / 4 = 5.75
El Pacifico = (5 + 1 + 9 + 3) / 4 = 4.50
Highway Inn = (4 + 1 + 6 + 6) / 4 = 4.25
Lanebrooke Spa = (8 + 9 + 8 + 9) / 4 = 8.50

Step 2 *– Identify the hotels with a "Price per Night" of £100 or less*

The Marmot = £117.00
Duchess and Rye = £186.00
El Pacifico = £164.00
Highway Inn = £116.00
Lanebrooke Spa = £97.00

Step 3 *–Identify the hotels with "Service" ratings of "Extremely High".*

The Marmot = 8
Duchess and Rye = 3
El Pacifico = 9
Highway Inn = 6
Lanebrooke Spa = 8

Step 4 *– Calculate how much it would cost to spend 1 night at each applicable hotel.*

£97.00 + £164.00 = £261.00

Thus the correct answer is (A) £261.00

Hotel	Comfort	Location	Service	Cleanliness	Price per Night
The Marmot	7	3	7	7	£127.00
Duchess and Rye	1	5	9	3	£128.00
El Pacifico	7	3	9	9	£69.00
Highway Inn	6	4	9	6	£89.00
Lanebrooke Spa	8	4	4	1	£130.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q18 You consider “Comfort” to be 75% more important than "Service", and "Service" to be twice as important as "Cleanliness". You consider “Location” to be irrelevant. With this in mind, which Hotel has the highest weight average rating across all relevant features?

(A) The Marmot
(B) Duchess and Rye
(C) El Pacifico
(D) Highway Inn
(E) Lanebrooke Spa
(F) None of the above

Step 1 *– Double each hotel’s rating for “Service”.*

The Marmot = 7 x 2 = 14
Duchess and Rye = 9 x 2 = 18
El Pacifico = 9 x 2 = 18
Highway Inn = 9 x 2 = 18
Lanebrooke Spa = 4 x 2 = 8

Step 2 *– Double each hotel’s rating for “Comfort” and increase that by 75%.*

The Marmot = 7 x 2 x 1.75 = 24.5
Duchess and Rye = 1 x 2 x 1.75 = 3.5
El Pacifico = 7 x 2 x 1.75 = 24.5
Highway Inn = 6 x 2 x 1.75 = 21
Lanebrooke Spa = 8 x 2 x 1.75 = 28

Step 3 *– Calculate the weighted average across the 3 relevant features (not including location)*

The Marmot = (24.5 + 14 + 7) / 3 = 15.17
Duchess and Rye = (3.5 + 18 + 3) / 3 = 8.17
El Pacifico = (24.5 + 18 + 9) / 3 = 17.17
Highway Inn = (21 + 18 + 6) / 3 = 15
Lanebrooke Spa = (28 + 8 + 1) / 3 = 12.33

Thus the correct answer is (C) El Pacifico

NUMERICAL REASONING TEST 13

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

Corporate Venue	Accessibility	Services	Location	Catering	Cost per Day
Meeting Room	6	5	4	9	£510.00
Conference Hall	4	7	1	3	£820.00
Renta-space	2	1	6	1	£1,000.00
Johnson Venues	6	6	9	8	£520.00
Studio Hire	5	3	6	6	£820.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q1 You want to book the venue with the fewest ratings at or below "Low". Which venue are you least likely to book?

(A) Meeting Room
(B) Conference Hall
(C) Renta-space
(D) Johnson Venues
(E) Studio Hire
(F) None of the above

Step 1 *– Identify the venue with the highest number of ratings at or below "Low"*

Meeting Room = 0 ratings at or below "Low"
Conference Hall = 2 ratings at or below "Low"
Renta-space = 3 ratings at or below "Low"
Johnson Venues = 0 ratings at or below "Low"
Studio Hire = 1 ratings at or below "Low"

Thus, the correct answer is (C) Renta-space

Corporate Venue	Accessibility	Services	Location	Catering	Cost per Day
Meeting Room	6	5	4	9	£510.00
Conference Hall	4	7	1	3	£820.00
Renta-space	2	1	6	1	£1,000.00
Johnson Venues	6	6	9	8	£520.00
Studio Hire	5	3	6	6	£820.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q2 You select the venues with an "Accessibility" rating at or above "Medium", you then select the venues with no ratings at or below "Low". Of the remaining venues, you choose the cheapest. Which venue have you chosen?

(A) Meeting Room
(B) Conference Hall
(C) Renta-space
(D) Johnson Venues
(E) Studio Hire
(F) None of the above

Step 1 *– Select the venues with "Accessibility" ratings at or above "Medium".*

Meeting Room = 6
Conference Hall = 4
Renta-space = 2
Johnson Venues = 6
Studio Hire = 5

Step 2 *– Of the applicable venues, select the venues with no ratings at or below "Low"*

Meeting Room = 0 ratings at or below "Low"
Johnson Venues = 0 ratings at or below "Low"
Studio Hire = 1 rating at or below "Low"

Step 2 *– Of the applicable venues, select the cheapest*

Meeting Room = £510.00
Johnson Venues = £520.00

Thus, the correct answer is (A) Meeting Room

Corporate Venue	Accessibility	Services	Location	Catering	Cost per Day
Meeting Room	6	5	4	9	£510.00
Conference Hall	4	7	1	3	£820.00
Renta-space	2	1	6	1	£1,000.00
Johnson Venues	6	6	9	8	£520.00
Studio Hire	5	3	6	6	£820.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q3 You only want to book a venue with an overall average rating of "Medium" or higher across all features, and a "Catering" rating which would be considered greater than the average across the 5 venues. Which venue do you book?

(A) Meeting Room
(B) Conference Hall
(C) Renta-space
(D) Johnson Venues
(E) Studio Hire
(F) None of the above

Step 1 *– Identify the venues with an overall average rating of "Medium" or higher.*

Meeting Room = (6 + 5 + 4 + 5) / 4 = 5
Conference Hall = (4 + 7 + 1 + 7) / 4 = 4.75
Renta-space = (2 + 1 + 6 + 9) / 4 = 4.5
Johnson Venues = (6 + 6 + 9 + 5) / 4 = 6.5
Studio Hire = (5 + 3 + 6 + 6) / 4 = 5

Step 2 *– Of the applicable venues, select a venue with a "Catering" rating which would be considered greater than the average across the 5 venues.*

Average catering rating = (5 + 7 + 9 + 5 + 6) / 5 = 6.4

Meeting Room = 5
Johnson Venues = 5
Studio Hire = 6

Thus, the correct answer is (F) None of the above

Corporate Venue	Accessibility	Services	Location	Catering	Cost per Day
Meeting Room	6	5	4	9	£510.00
Conference Hall	4	7	1	3	£820.00
Renta-space	2	1	6	1	£1,000.00
Johnson Venues	6	6	9	8	£520.00
Studio Hire	5	3	6	6	£820.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q4 Of the venues with a rating of "Medium" or above for "Location", you select the venues with an average rating across all features higher than "Studio Hire". Which venue do you choose?

(A) Meeting Room
(B) Conference Hall
(C) Renta-space
(D) Johnson Venues
(E) Studio Hire
(F) None of the above

Step 1 *– Identify the venues with a rating of "Medium" or above for "Location"*

Meeting Room = 4
Conference Hall = 1
Renta-space = 6
Johnson Venues = 9
Studio Hire = 6

Step 2 *– Of the applicable venues, identify the average overall ratings for each venue, and select the venue with a rating higher than "Studio Hire".*

Studio Hire = (5 + 3 + 6 + 6) / 4 = 5
Renta-space = (2 + 1 + 6 + 1) / 4 = 2.5
Johnson Venues = (6 + 6 + 9 + 8) / 4 = 7.25

Thus, the correct answer is (D) Johnson Venues

Corporate Venue	Accessibility	Services	Location	Catering	Cost per Day
Meeting Room	6	5	4	9	£510.00
Conference Hall	4	7	1	3	£820.00
Renta-space	2	1	6	1	£1,000.00
Johnson Venues	6	6	9	8	£520.00
Studio Hire	5	3	6	6	£820.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q5 You want to book the venue with the highest overall average you can get while not paying more than £650 per day. Which venue should you book?

(A) Meeting Room
(B) Conference Hall
(C) Renta-space
(D) Johnson Venues
(E) Studio Hire
(F) None of the above

Step 1 *– Identify the venues which charge less than £650 per day*

Meeting Room = £530.00
Conference Hall = £820.00
Renta-space = £1,000.00
Johnson Venues = £520.00
Studio Hire = £820.00

Step 2 *– Calculate the overall average rating for the applicable venues, and select the venue with the highest average.*

Meeting Room = (6 + 5 + 4 + 9) / 4 = 6
Johnson Venues = (6 + 6 + 9 + 8) / 4 = 7.25

Thus, the correct answer is (D) Johnson Venues

Corporate Venue	Accessibility	Services	Location	Catering	Cost per Day
Meeting Room	6	5	4	9	£510.00
Conference Hall	4	7	1	3	£820.00
Renta-space	2	1	6	1	£1,000.00
Johnson Venues	6	6	9	8	£520.00
Studio Hire	5	3	6	6	£820.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q6 You want to book a venue with as few ratings at or below "Low" as possible, while not paying more than £3,750 for 5 days. Which venue can you book?

(A) Meeting Room
(B) Conference Hall
(C) Renta-space
(D) Johnson Venues
(E) Studio Hire
(F) None of the above

Step 1 *– Identify which venues would cost less than £3,750 for 5 days*

Meeting Room = £510.00 x 5 = £2,250
Conference Hall = £820.00 x 5 = £4,100
Renta-space = £1,000.00 x 5 = £5,000
Johnson Venues = £520.00 x 5 = £2,600
Studio Hire = £820.00 x 5 = £4,100

Step 2 *– Of the applicable venues, select the venue with the fewest ratings at or below "Low.*

Meeting Room = 1 rating at or below "Low"
Johnson Venues = 0 ratings at or below "Low"

Thus, the correct answer is (D) Johnson Venues

Corporate Venue	Accessibility	Services	Location	Catering	Cost per Day
Meeting Room	6	5	4	9	£510.00
Conference Hall	4	7	1	3	£820.00
Renta-space	2	1	6	1	£1,000.00
Johnson Venues	6	6	9	8	£520.00
Studio Hire	5	3	6	6	£820.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q7 You do not want to book a venue with the lowest rating for any of the four ratings. Which venue can you book?

(A) Meeting Room
(B) Conference Hall
(C) Renta-space
(D) Johnson Venues
(E) Studio Hire
(F) None of the above

Step 1 *– Select the venue with the lowest number of ratings across any of the four ratings.*

Meeting Room = No lowest ratings
Conference Hall = Lowest rating for "Location"
Renta-space = Lowest rating for "Accessibility"
Johnson Venues = Lowest rating for "Catering"
Studio Hire = Lowest rating for "Services"

Thus, the correct answer is (A) Meeting Room

Corporate Venue	Accessibility	Services	Location	Catering	Cost per Day
Meeting Room	6	5	4	9	£510.00
Conference Hall	4	7	1	3	£820.00
Renta-space	2	1	6	1	£1,000.00
Johnson Venues	6	6	9	8	£520.00
Studio Hire	5	3	6	6	£820.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q8 The venue with the lowest overall average rating across all features is offering a 25% discount on its "Cost per Day". How much would it cost to book this venue for 3 days?

(A) £1,982.50
(B) £2,047.50
(C) £2,112.50
(D) £2,177.50
(E) £2,242.50
(F) None of the above

Step 1 *– Identify the venue with the lowest overall average across all features*

Meeting Room = (6 + 5 + 4 + 9) / 4 = 6
Conference Hall = (4 + 7 + 1 + 3) / 4 = 3.75
Renta-space = (2 + 5 + 6 + 1) / 4 = 3.5
Johnson Venues = (6 + 6 + 9 + 8) / 4 = 7.25
Studio Hire = (5 + 3 + 6 + 6) / 4 = 5

Step 2 *– Calculate how much it would cost to book this venue for 3 days, with a 25% discount.*

£910.00 x 3 = £2,730
£2,730 – (£2,730 x 0.25) =£2,047.50

Thus, the correct answer is (B) £2,047.50

Corporate Venue	Accessibility	Services	Location	Catering	Cost per Day
Meeting Room	6	5	4	9	£510.00
Conference Hall	4	7	1	3	£820.00
Renta-space	2	1	6	1	£1,000.00
Johnson Venues	6	6	9	8	£520.00
Studio Hire	5	3	6	6	£820.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q9 You consider "Location" to be twice as important as "Services" and "Catering". You consider "Accessibility" to be irrelevant. With this in mind, which venue has the highest weighted average across the relevant features?

(A) Meeting Room
(B) Conference Hall
(C) Renta-space
(D) Johnson Venues
(E) Studio Hire
(F) None of the above

Step 1 *– Double the "Location" rating for each venue*

Meeting Room = 9 x2 = 18
Conference Hall = 5 x 2 = 10
Renta-space = 1 x2 =2
Johnson Venues = 6 x 2 = 12
Studio Hire = 1 x 2 = 2

Step 2 *– Calculate the weighted average score across the 3 relevant features (not including "Accessibility") and identify the venue with the highest average.*

Meeting Room = (2 + 18 + 3) / 3 = 7.67
Conference Hall = (6 + 10 + 2) / 3 = 6
Renta-space = (9 + 2 + 9) / 3 = 6.67
Johnson Venues = (6 + 12 + 9) / 3 = 9
Studio Hire = (2 + 2 + 7) / 3 = 3.67

Thus, the correct answer is (D) Johnson Venues

NUMERICAL REASONING TEST 14

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

Energy Provider	Customer Service	Eco-friendliness	Clarity of Billing	Payment Options	Monthly Bill
DZpower	4	5	3	7	£70.00
GasTech	2	1	9	6	£73.00
UK Power	9	7	9	1	£67.00
HM Electrical	9	1	4	5	£61.00
Global Gas	1	4	1	8	£72.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q1 You want to sign up with the energy provider with the lowest "Monthly Bill" to "Payment Options" ratio. Which energy provider do you select?

(A) DZpower
(B) GasTech
(C) UK Power
(D) HM Electrical
(E) Global Gas
(F) None of the above

Step 1 *– Calculate the "Monthly Bill" to "Payment Options" ratio for each energy provider and select the lowest*

DZpower = £70.0 / 7 = 10
GasTech = £73.00 / 6 = 12.17
UK Power = £67.00 / 1 = 67
HM Electrical = £61.00 / 5 = 12.2
Global Gas = £72.00 / 8 = 9

Thus the correct answer is (E) Global Gas

Energy Provider	Customer Service	Eco-friendliness	Clarity of Billing	Payment Options	Monthly Bill
DZpower	4	5	3	7	£70.00
GasTech	2	1	9	6	£73.00
UK Power	9	7	9	1	£67.00
HM Electrical	9	1	4	5	£61.00
Global Gas	1	4	1	8	£72.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q2 You select the three energy providers with the highest rating for "Customer Service". From these providers, you select the two with the highest rating for "Eco-friendliness". You then select the provider with the lowest "Monthly Bill", which provider do you select?

(A) DZpower
(B) GasTech
(C) UK Power
(D) HM Electrical
(E) Global Gas
(F) None of the above

Step 1 *– Select the three energy providers with the highest rating for "Customer Service"*

DZpower = 4
GasTech = 2
UK Power = 9
HM Electrical = 9
Global Gas = 1

Step 2 *– Of the applicable energy providers, select the two energy providers with the highest ratings for "Eco-friendliness"*

DZpower = 5
UK Power = 7
HM Electrical = 1

Step 3 *– Of the applicable energy providers, select the provider with the lowest "Monthly Bill"*

DZpower = £70.00
UK Power = £67.00

Thus the correct answer is (C) UK Power

Energy Provider	Customer Service	Eco-friendliness	Clarity of Billing	Payment Options	Monthly Bill
DZpower	4	5	3	7	£70.00
GasTech	2	1	9	6	£73.00
UK Power	9	7	9	1	£67.00
HM Electrical	9	1	4	5	£61.00
Global Gas	1	4	1	8	£72.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q3 You only want to sign up with an energy provider with a rating of "Extremely High" for both "Payment Options" and "Clarity of Billing". Which provider do you choose?

(A) DZpower
(B) GasTech
(C) UK Power
(D) HM Electrical
(E) Global Gas
(F) None of the above

Step 1 *– Select an energy provider with a rating of "Extremely high" for both "Payment Options" and "Clarity of Billing"*

DZpower = 7 and 3
GasTech = 6 and 9
UK Power = 1 and 9
HM Electrical = 5 and 4
Global Gas = 8 and 1

Thus the correct answer is (F) None of the above

Energy Provider	Customer Service	Eco-friendliness	Clarity of Billing	Payment Options	Monthly Bill
DZpower	4	5	3	7	£70.00
GasTech	2	1	9	6	£73.00
UK Power	9	7	9	1	£67.00
HM Electrical	9	1	4	5	£61.00
Global Gas	1	4	1	8	£72.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q4 You select the energy providers with "Clarity of Billing" ratings of "Above Average" or higher. Of these providers, you select the providers with a "Customer Service" rating of "Medium" or higher. You then choose this provider and sign up for one year. How much would this cost?

(A) £734.00
(B) £699.00
(C) £734.00
(D) £769.00
(E) £804.00
(F) None of the above

Step 1 *– Select the providers with a rating of "Above Average" or higher for "Clarity of Billing"*

DZpower = 3
GasTech =9
UK Power =9
HM Electrical = 4
Global Gas = 1

Step 2 *– Of the applicable companies, select the providers with a rating of "Medium" or higher for "Customer Service"*

GasTech = 2
UK Power = 9

Step 3 *– Calculate how much it would cost to sign up with this provider for 1 year*

£67.00 x 12 = £804

Thus the correct answer is (E) £804

Energy Provider	Customer Service	Eco-friendliness	Clarity of Billing	Payment Options	Monthly Bill
DZpower	4	5	3	7	£70.00
GasTech	2	1	9	6	£73.00
UK Power	9	7	9	1	£67.00
HM Electrical	9	1	4	5	£61.00
Global Gas	1	4	1	8	£72.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q5 You want to sign up with the energy provider with the lowest "Monthly Billing" to overall average rating ratio across all features. Which provider do you select?

(A) DZpower
(B) GasTech
(C) UK Power
(D) HM Electrical
(E) Global Gas
(F) None of the above

Step 1 *– Calculate the overall average rating of each energy provider across all four features*

DZpower = (8 + 1 + 5 + 7) / 4 = 5.25
GasTech = (6 + 7 + 6 + 8) / 4 = 6.75
UK Power = (2 + 6 + 8 + 6) / 4 = 5.5
HM Electrical = (7 + 4 + 2 + 3) / 4 = 4
Global Gas = (9 + 1 + 4 + 1) / 4 = 3.75

Step 2 *– Calculate the "Monthly Billing" to overall average rating ratio for each provider and select the provider with the lowest ratio*

DZpower = £80.00 / 5.25 = 15.24
GasTech = £96.00 / 6.75 = 14.22
UK Power = £88.00 / 5.5 = 16
HM Electrical = £86.00 / 4 = 21.5
Global Gas = £84.00 / 3.75 = 22.4

Thus the correct answer is (B) GasTech

Energy Provider	Customer Service	Eco-friendliness	Clarity of Billing	Payment Options	Monthly Bill
DZpower	4	5	3	7	£70.00
GasTech	2	1	9	6	£73.00
UK Power	9	7	9	1	£67.00
HM Electrical	9	1	4	5	£61.00
Global Gas	1	4	1	8	£72.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q6 You want to sign up with the energy provider with the highest rating for "Eco-friendliness" you can get while still having no ratings below "Low". Which provider do you choose?

(A) DZpower
(B) GasTech
(C) UK Power
(D) HM Electrical
(E) Global Gas
(F) None of the above

Step 1 *– Identify the energy providers with no ratings below "Low"*

DZpower = No ratings below "Low"
GasTech = 1 rating below "Low"
UK Power = 2 ratings below "Low"
HM Electrical = 1 rating below "Low"
Global Gas = No ratings below "Low"

Step 2 *– Of the applicable providers, select the provider with the highest rating for "Eco-Friendliness"*

DZpower = 3
Global Gas = 5

Thus the correct answer is (E) Global Gas

Energy Provider	Customer Service	Eco-friendliness	Clarity of Billing	Payment Options	Monthly Bill
DZpower	4	5	3	7	£70.00
GasTech	2	1	9	6	£73.00
UK Power	9	7	9	1	£67.00
HM Electrical	9	1	4	5	£61.00
Global Gas	1	4	1	8	£72.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q7 You don't want to sign up to an energy provider with an "Eco-Friendliness" rating of "Low" or lower. You also don't want to sign up to a provider with any rating at "Very Low" or lower. Which providers can you sign up with?

(A) DZpower & GasTech
(B) UK Power & HM Electrical
(C) GasTech & UK Power
(D) HM Electrical & DZpower
(E) Global Gas & HM Electrical
(F) None of the above

Step 1 *– Identify the providers with "Eco-Friendliness" ratings higher than "Low"*

DZpower = 5
GasTech =6
UK Power = 5
HM Electrical = 8
Global Gas = 8

Step 2 *– Identify the providers with no ratings at "Very Low" or lower*

DZpower = 1 rating at "Very low" or lower
GasTech =0 ratings at "Very low" or lower
UK Power = 0 ratings at "Very low" or lower
HM Electrical = 1 rating at "Very low" or lower
Global Gas = 1 rating at "Very low" or lower

Thus the correct answer is (C) GasTech & UK Power

Energy Provider	Customer Service	Eco-friendliness	Clarity of Billing	Payment Options	Monthly Bill
DZpower	4	5	3	7	£70.00
GasTech	2	1	9	6	£73.00
UK Power	9	7	9	1	£67.00
HM Electrical	9	1	4	5	£61.00
Global Gas	1	4	1	8	£72.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q8 You either want to sign up to an energy provider with a combined "Customer Service" and "Clarity of Billing" rating of 16 or higher, or a provider with a "Monthly Bill" to "Customer Service" ratio of £10 or lower. Which providers can you sign up with?

(A) DZpower
(B) GasTech
(C) UK Power
(D) HM Electrical
(E) Global Gas
(F) None of the above

Step 1 *– Calculate the combined "Customer Service" and "Clarity of Billing" ratings of each provider*

DZpower = 7 + 7 = 14
GasTech = 5 +2 = 7
UK Power = 5 + 1 = 6
HM Electrical = 2 + 1 = 2
Global Gas = 8 + 5 = 13

Step 2 *–Identify a provider with a "Monthly Bill" to "Customer Service" ratio of £10 or lower*

DZpower = £77.00 / 7 = £11
GasTech = £98.00 / 2 = £49
UK Power = £82.00 / 1 = £82
HM Electrical = £56.00 / 1 = £56
Global Gas = £90.00 / 5 = £18

Thus the correct answer is (F) None of the above

Energy Provider	Customer Service	Eco-friendliness	Clarity of Billing	Payment Options	Monthly Bill
DZpower	4	5	3	7	£70.00
GasTech	2	1	9	6	£73.00
UK Power	9	7	9	1	£67.00
HM Electrical	9	1	4	5	£61.00
Global Gas	1	4	1	8	£72.00

Ratings Key:

Extremely Low	Very Low	Low	Below Average	Medium	Above Average	High	Very High	Extremely High
1	2	3	4	5	6	7	8	9

Q9 You want to sign up with the energy provider with the highest average rating across "Eco-Friendliness" and "Clarity of Billing", but you are willing to give up 1 point of this average rating for two points of "Customer Service". Which energy provider do you sign up with?

(A) DZpower
(B) GasTech
(C) UK Power
(D) HM Electrical
(E) Global Gas
(F) None of the above

Step 1 *– Calculate the average rating across "Eco-Friendliness" and "Clarity of Billing" for each provider*

DZpower = (3 + 8) / 2 = 5.5
GasTech = (8 + 7) / 2 = 7.5
UK Power = (8 + 9) / 2 = 8.5
HM Electrical = (3 + 9) / 2 = 6
Global Gas = (1 + 2) / 2 = 1.5

Step 2 *– Halve the "Customer Service" rating for each provider, and add that to their average rating for "Eco-Friendliness" and "Clarity of Billing", then select the highest.*

DZpower = 5.5 + (5 / 2) = 8
GasTech = 7.5 + (9 / 2) = 12
UK Power = 8.5 + (4 / 2) = 10.5
HM Electrical = 6 + (9 / 2) = 10.5
Global Gas = 1.5 + (6 / 2) = 4.5

Thus the correct answer is (B) GasTech

NUMERICAL REASONING TEST 15

Instructions

This Numerical reasoning test comprises 20 questions and you will have 20 minutes in which to correctly answer as many as you can.

In each question you will be presented with tables, graphs or charts followed by three or four questions. You will need to determine which answer is correct based on the information provided in the passages only.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

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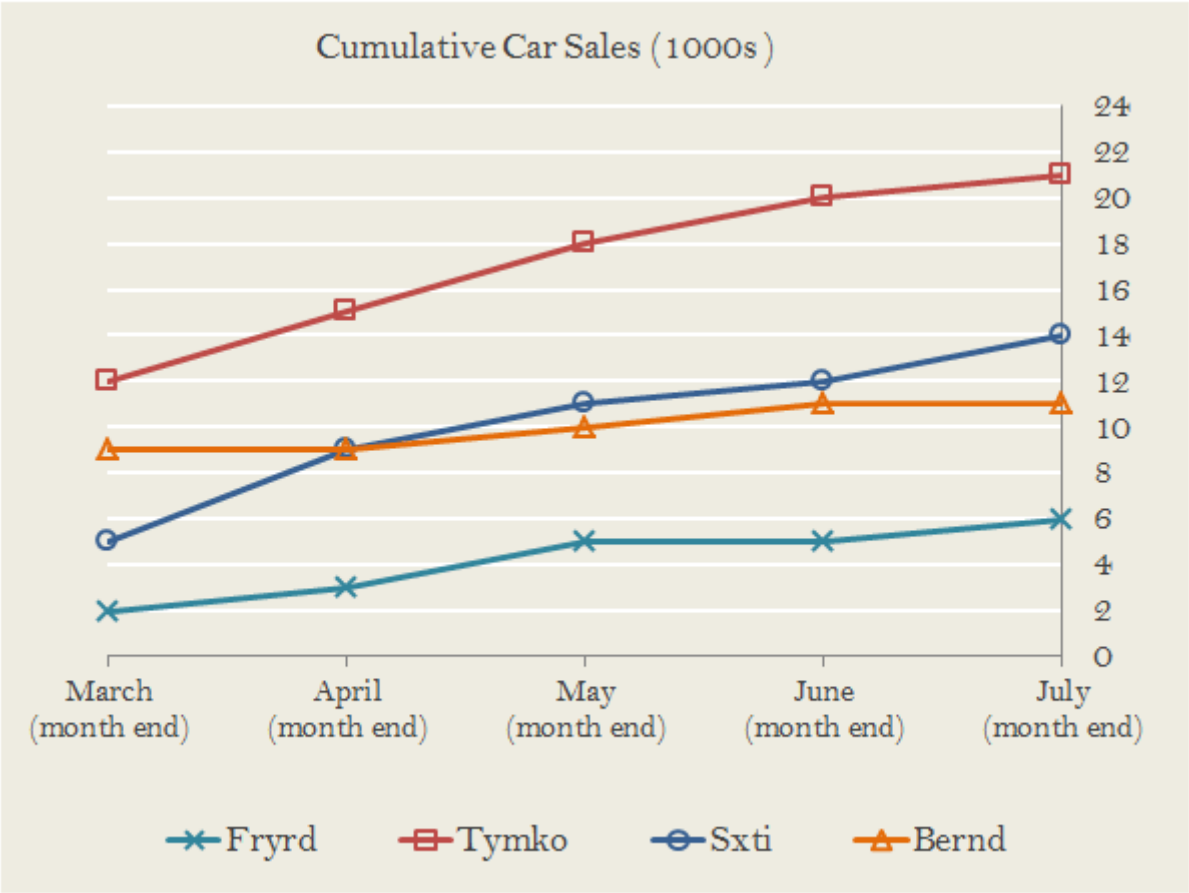
Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**



Q1 How many Bernd cars were sold in May?

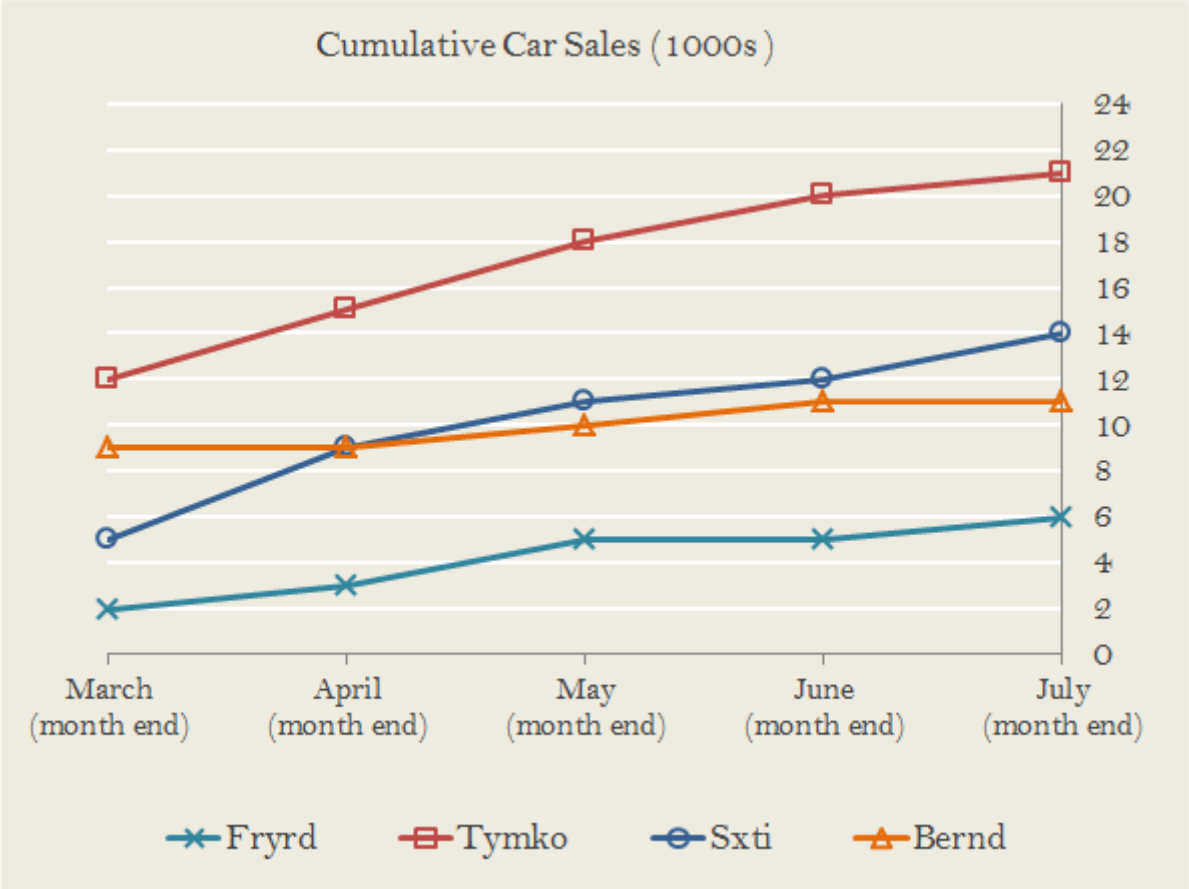
(A) 10
(B) 1,000
(C) 5,000
(D) 10,000

The trick to this question is to recognise that the graph gives sales figures cumulatively.

Step 1 *- We see from the graph that the cumulative Bernd sales at the end of April are 9,000. We see that the cumulative Bernd sales at the end of May are 10,000.*

Step 2 *- Therefore during May (10,000 – 9,000 =) 1,000 Bernd cars must have been sold.*

Thus the correct answer is (B) 1,000



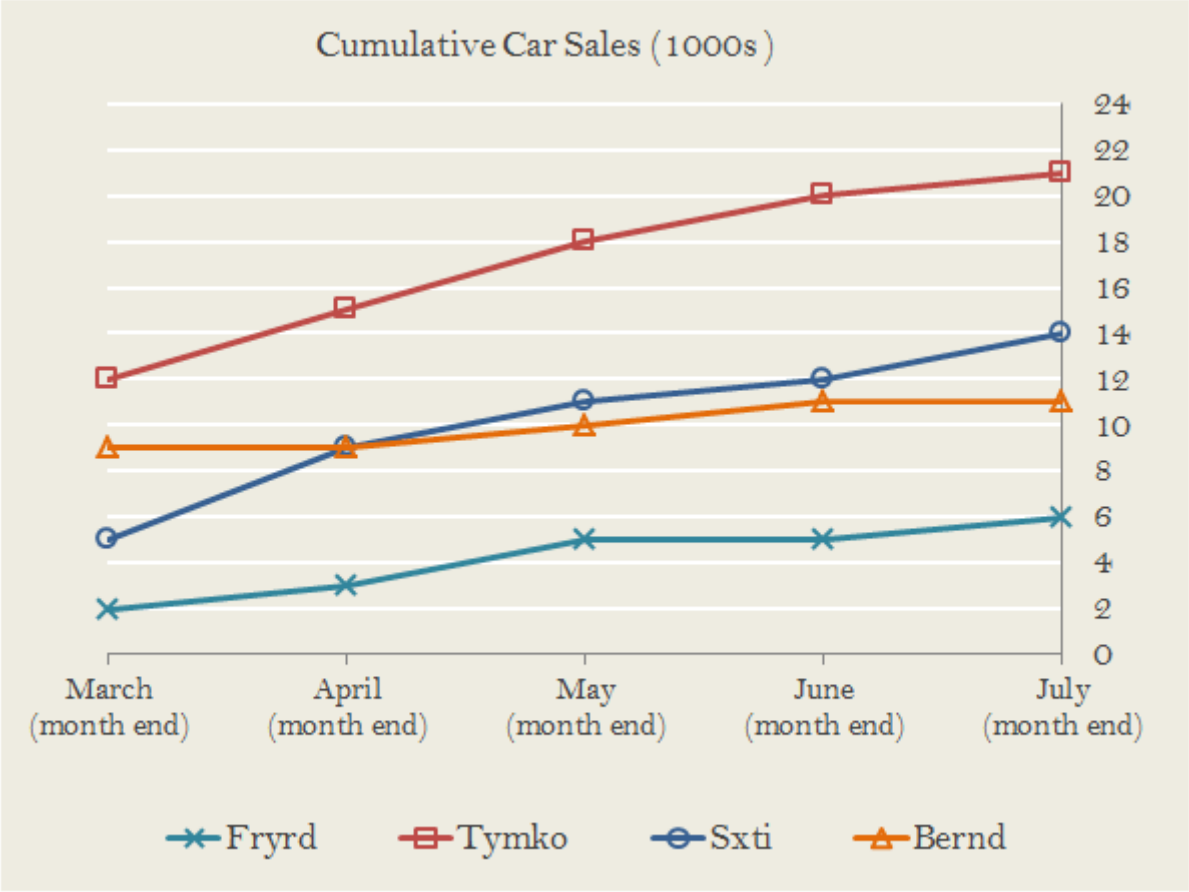
Q2 What were the total sales of Tymko cars for May, June and July combined?

(A) 21,000
(B) 16,000
(C) 22,000
(D) 6,000

Don't waste time working out the sales for each month. Since the data is cumulative, we can say combined sales for May, June and July = (cumulative sales for end of July) – (cumulative sales end of April).

Step 1 *- (Cumulative sales July) – (Cumulative sales April) = (21,000) – (15,000) = 6,000*

Thus the correct answer is (D) 6,000



Q3 If the number of Bernd cars sold in July had been equal to the number of Bernd cars sold in June, how many more Bernd cars would have been sold during July?

(A) 1,000
(B) 1
(C) 12,000
(D) 2,000

Step 1 *- First, find out the number of Bernd cars sold in June. From the cumulative graph we see this is 1,000.*

Step 2 *- Now, compare this with how many Bernd cars were actually sold in July. We see from the graph there were no sales 1,000 – 0 = 1,000*

Thus the correct answer is (A) 1,000

City Population Composition (Year 2000)

	Population at start of year (thousands)	Live births per 1000 population (Jan-Dec)	Deaths per 1000 population (Jan-Dec)	% Population under 15 at start of year	% Population aged 60 or over at start of year
London	7,500	11.2	9.7	16	18
Birmingham	995	13.6	12.7	18	22
Glasgow	600	13.8	13.2	21	21
Liverpool	500	13.4	12.4	22	22
Leeds	450	14.1	13.0	23	23

Q4 In Liverpool what was the net effect of live birth and death rates on the population during 2000?

(A) 200 decrease
(B) 600 increase
(C) 500 increase
(D) 300 increase

Step 1 *- In Liverpool the population was 500,000 at the start of the year. We are told there were 13.4 births per thousand of the population. So this means there were (500 x 13.4 =) 6,700.*

Step 2 *- We are told there were 12.4 deaths per thousand of the population, i.e. 500 x 12.4 = 6,200.*

Step 3 *- The net effect on population is 6,700 – 6,200 = 500.*

Thus the correct answer is (C) 500 increase.

City Population Composition (Year 2000)

	Population at start of year (thousands)	Live births per 1000 population (Jan-Dec)	Deaths per 1000 population (Jan-Dec)	% Population under 15 at start of year	% Population aged 60 or over at start of year
London	7,500	11.2	9.7	16	18
Birmingham	995	13.6	12.7	18	22
Glasgow	600	13.8	13.2	21	21
Liverpool	500	13.4	12.4	22	22
Leeds	450	14.1	13.0	23	23

Q5 How many live births occurred in 2000 in Birmingham and Glasgow combined?

(A) 21,812
(B) 18,210
(C) 16,700
(D) 32,100

Step 1 - In Birmingham there were 995 x 13.6 = 13,532 births. In Glasgow there were 600 x 13.8 = 8,280 live births. In total that is 13,532 + 8,280 = 21,812

Thus the correct answer is (A) 21,812

City Population Composition (Year 2000)

	Population at start of year (thousands)	Live births per 1000 population (Jan-Dec)	Deaths per 1000 population (Jan-Dec)	% Population under 15 at start of year	% Population aged 60 or over at start of year
London	7,500	11.2	9.7	16	18
Birmingham	995	13.6	12.7	18	22
Glasgow	600	13.8	13.2	21	21
Liverpool	500	13.4	12.4	22	22
Leeds	450	14.1	13.0	23	23

Q6 Of the cities shown, which had the lowest number of people under the age of 15 at the start of the year 2000?

(A) Birmingham
(B) Glasgow
(C) Liverpool
(D) Leeds

Tip - *The question says "of the cities shown". Without this technically we would have to respond "cannot say" because we are not told any information about any other cities and therefore we would not be able to say with any certainty which had the lowest number. As it happens in this question "cannot say" is not an option so we would have been OK, but it's a catch worth looking out for.*

Step 1 - *Work through each city shown calculating the number of under 15 year olds. Don't worry about entering the thousands in your calculator – this just wastes time.*

London: don't bother calculating as it is not a possible answer.
Birmingham: 995 x 0.18 = 179.1
Glasgow: 600 x 0.21 = 126
Liverpool: 500 x 0.22 = 110
Leeds: 450 x 0.23 = 103.5

Thus the correct answer is (D) Leeds

Money spent on public transport (£billion)				
	2006	2007	2008	2008 population
UK	32	35	38	60,100,000
US	121	128	136	302,500,000
Germany	39	44	46	84,300,000
Italy	25	26	28	58,700,000

Q7 Which of the countries shown experienced the largest percentage increase in public transport spending from 2007 to 2008?

(A) UK
(B) US
(C) Germany
(D) Cannot tell

Step 1 - *Calculate the percentage increase from 2007 to 2008 for each country. Don't bother with the billions, the percentage calculation won't be affected.*

UK: 38 ÷ 35 = 8.57% increase
US: 136 ÷ 128 = 6.25% increase
Germany: 46 ÷ 44 = 4.55% increase
Italy: 28 ÷ 26 = 7.69% increase

Thus the correct answer is (A) UK

Tip*: we will be using this short-hand method of calculating percentages as it saves time. If you prefer you can do it the long way. So for example the UK percentage would be as follows.*
Step 1: (38-35) ÷ 35 = 0.085714
Step 2: 0.085714 x 100 = 8.5714
Step 3: 8.57% increase

Money spent on public transport (£billion)				
	2006	2007	2008	2008 population
UK	32	35	38	60,100,000
US	121	128	136	302,500,000
Germany	39	44	46	84,300,000
Italy	25	26	28	58,700,000

Q8 Which of the countries shown had the highest public transport spend per capita in 2008?

(A) UK
(B) US
(C) Germany
(D) Cannot say

Step 1 - Simply divide the public transport spend by the population for each country. Again, use units which simplify the calculation because we are only interested in the relative order of magnitude.

UK: 38 ÷ 60.1 = 0.632
US: 136 ÷ 302.5 = 0.450
Germany: 46 ÷ 84.3 = 0.546
Italy: don't bother as this is not an option.

Thus the correct answer is (A) UK

Q9 In 2007 Italy had a target to spend 8% more on public transport than they did in 2006. By how much were they short of this target?

(A) £1 million
(B) £1 billion
(C) £0.1 billion
(D) Cannot tell

Step 1 *- In 2006 Italy spent £25 billion An increase of 8% is: £25 billion x 1.08 = £27 billion.*

Step 2 *- We see from the table that Italy actually spent £26 billion. That's £1 billion short of the target.*

Thus the correct answer is (B) £1 billion

Internet sales data for Newbags.com

Visitors from	Number of visitors	Number of visitors who made a purchase
Website W	315,380	2,876
Website X	26,850	284
Website Y	82,520	183
Website Z	12,630	204

Q10 Visitors arriving from which website were most likely to make a purchase at newbags.com?

(A) Website W
(B) Website X
(C) Website Y
(D) Website Z

Step 1 - For each arrival website, calculate the percentage of visitors who made a purchase out of the number of visitors.

W: 2,876 ÷ 315,380 = 0.912%
X: 284 ÷ 26,850 = 1.06%
Y: 183 ÷ 82,520 = 0.222%
Z: 204 ÷ 12,630 = 1.62%

Thus the correct answer is (D) Website Z

Q11 If the average profit made per sale at newbags.com was £12, approximately how much more profit was made from visitors from Website X than visitors from Website Y?

(A) £1,212
(B) £1,852
(C) £867
(D) £891

Step 1 *- Calculate how many more sales came from Website X than from Website Y.*
284 – 183 = 101.

Step 2 *- Calculate the profit difference. 101 x £12 = £1,212*

Thus the correct answer is (A) £1,212

Internet sales data for Newbags.com

Visitors from	Number of visitors	Number of visitors who made a purchase
Website W	315,380	2,876
Website X	26,850	284
Website Y	82,520	183
Website Z	12,630	204

Q12 Assuming all visitors arrived via either website W, X, Y or Z, approximately what percentage of visitors arrived at newbags.com from Website Y?

(A) 15.7%
(B) 18.9%
(C) 25.0%
(D) 30.3%

Step 1 *- Add up the total number of visitors. 315,380 + 26,850 + 82,520 + 12,630 = 437,380.*

Step 2 *- Calculate the percentage of them who came from Website Y. 82,520 ÷ 437,380 = 18.87%*

Thus the correct answer is (B) 18.9%

TOTAL SALES (£millions)			
Region	Previous Year	Current Year	Next Year's Projection
Northern	310	310	320
Southern	170	160	165
Eastern	290	300	275
Western	255	280	270
Central	110	90	125

Q13 If the sales projections for next year prove accurate, which region will have maintained or increased sales levels each year from the previous year to next year?

(A) Northern region
(B) Southern region
(C) Eastern region
(D) Western region
(E) Central region

Step 1 *– Calculate the regional sales for the current year using the table.*

Step 2 *– Compare the numbers from Step 1 to the figures for the previous year and for next year, as follows;*

Region	*Previous Year*	*Current year*	*Next Year's Projection*
Northern	*310*	*310*	*320*
Southern	*170*	*160*	*165*
Eastern	*290*	*300*	*275*
Western	*255*	*280*	*270*
Central	*110*	*90*	*125*

Only the Northern region has maintained sales at 310 for the previous and current year, as well as projecting an increase in sales to 320 for next year.

Thus the correct Answer is (A) Northern region

TOTAL SALES (£millions)			
Region	Previous Year	Current Year	Next Year's Projection
Northern	310	310	320
Southern	170	160	165
Eastern	290	300	275
Western	255	280	270
Central	110	90	125

Q14 What is the absolute difference between the lowest and the highest performing region (to the nearest £million) in the current year?

(A) £216 million
(B) £217 million
(C) £218 million
(D) £219 million
(E) £220 million

Step 1 *- Calculate the difference between the highest regional sales (Northern) and the lowest regional sales (Central)*
310 – 90 = £220 million

Thus the correct Answer is (E) £220 million

TOTAL SALES (£millions)			
Region	Previous Year	Current Year	Next Year's Projection
Northern	310	310	320
Southern	170	160	165
Eastern	290	300	275
Western	255	280	270
Central	110	90	125

Q15 If next year's forecasts are scaled back by a quarter for the Northern and Western region, and by a fifth for the Southern and Eastern regions, what will be the total projected sales for all 5 regions?

(A) £1,155 million
(B) £924 million
(C) £919.50 million
(D) £942 million
(E) £866.25 million

Step 1 *- Calculate the new regional sales for the 4 regions affected and sum these, as shown in the table below:*

Region	*Next Year's Projection*	*New Projection*
Northern	*320*	*x 3/4 = 240*
Southern	*165*	*x 4/5 = 132*
Eastern	*275*	*x 4/5 = 220*
Western	*270*	*x 3/4 = 202.5*
Central	*125*	*125*
TOTAL		*919.50*

Thus the correct Answer is (C) £919.50 million

TOTAL SALES (£millions)			
Region	Previous Year	Current Year	Next Year's Projection
Northern	310	310	320
Southern	170	160	165
Eastern	290	300	275
Western	255	280	270
Central	110	90	125

Q16 What were the ratios for the Central: Eastern regional sales for the Previous Year compared to the Current Year?

(A) 9:30 (Previous Year); 3:11 (Current Year)
(B) 20:50 (Previous Year); 3:11 (Current Year)
(C) 10:30 (Previous Year); 5:11 (Current Year)
(D) 11:29 (Previous Year); 3:10 (Current Year)
(E) 5:11 (Previous Year); 11:29 (Current Year)

Step 1 *– Put the Previous Year's sales for these regions into a ratio*
110:290

Step 2 *– Put the Current Year's sales for these regions into a ratio*
90:300

Step 3 *– Simplify these ratios by dividing by the highest common denominator*
11:29 for Previous Year (after division by 10)
3:10 for Current Year (after division by 30)

Thus the correct answer is (D) 11:29 (Previous Year); 3:10 (Current Year)

TOTAL SALES (£millions)			
Region	Previous Year	Current Year	Next Year's Projection
Northern	310	310	320
Southern	170	160	165
Eastern	290	300	275
Western	255	280	270
Central	110	90	125

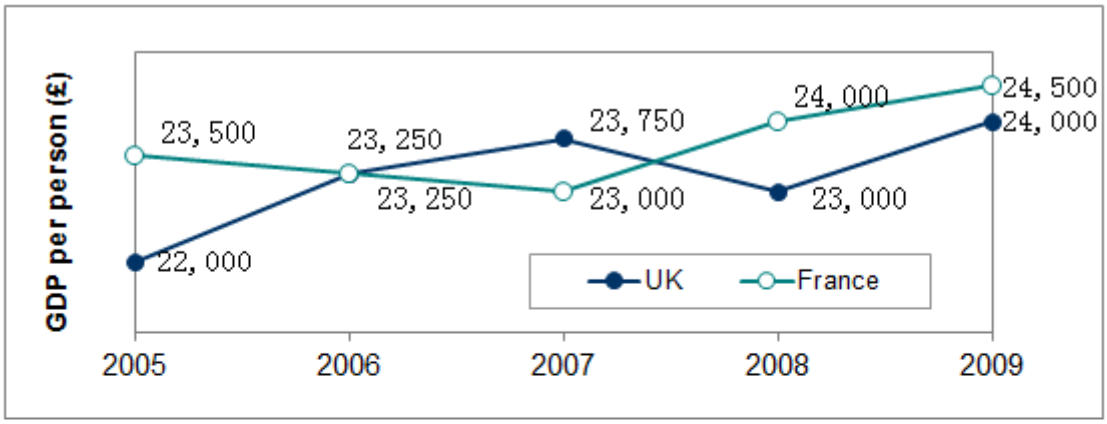
Q17 Put the regions in increasing order of total combined sales for the current year and next year's projection

(A) Central, Southern, Western, Eastern, Northern
(B) Southern, Central, Western, Eastern, Northern
(C) Central, Western, Southern, Eastern, Northern
(D) Central, Southern, Western, Northern, Eastern
(E) Central, Southern, Northern, Western, Eastern

Step 1 *- Calculate the totals for each region, as follows:*

	Current Year	*Next Year*	*Total*
Northern	*310*	*320*	*630*
Southern	*160*	*165*	*325*
Eastern	*300*	*275*	*575*
Western	*280*	*270*	*550*
Central	*90*	*125*	*215*

Thus the correct answer is (A) Central, Southern, Western, Eastern, Northern



2009	Country's Gross Domestic Product (£billion)	GDP Per person (£1000s)
UK	2.05	24
France	2.4	24.5
Germany	3.1	25.7
Spain	1.4	20.5
Italy	1.95	23.6

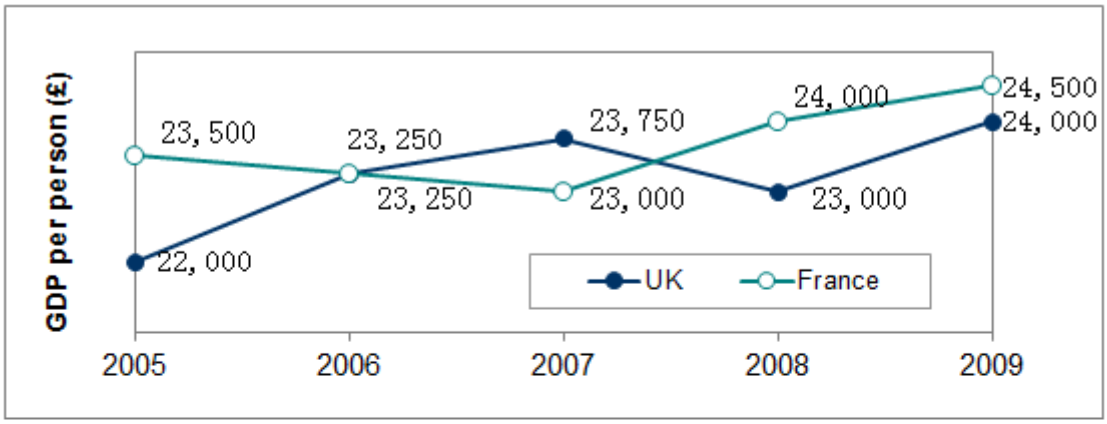
Q18 In which year (or years) was there more than a 3.3% difference in the GDP per person for France compared to the UK?

(A) 2005, 2007
(B) 2006, 2008
(C) 2007, 2008
(D) 2008, 2005
(E) 2009, 2005

Step 1 *– Calculate the % difference as shown in the table below:*

Year	*UK*	*France*	*Difference*	*% Difference*
2005	*22000*	*23500*	*1500*	*6.82*
2006	*23250*	*23250*	*0*	*0.00*
2007	*23750*	*23000*	*-750*	*-3.16*
2008	*23000*	*24000*	*1000*	*4.35*
2009	*24000*	*24500*	*500*	*2.08*

Thus the correct answer is (D) 2008, 2005



2009	Country's Gross Domestic Product (£billion)	GDP Per person (£1000s)
UK	2.05	24
France	2.4	24.5
Germany	3.1	25.7
Spain	1.4	20.5
Italy	1.95	23.6

Q19 Which of the following statements is false?

(A) Germany has the highest GDP of the countries shown.
(B) Germany's GDP is over 20% higher than the France's GDP in 2009.
(C) The 2005-2009 range of UK GDP per person is £23,500-£24,500.
(D) The average GDP per country for the 5 countries shown is £2.18 billion.
(E) The lowest and highest GDP per person are £20,500 and £25,700 respectively.

Step 1 *- Go through each of the answer options checking if it is true or false:*

a) Is True

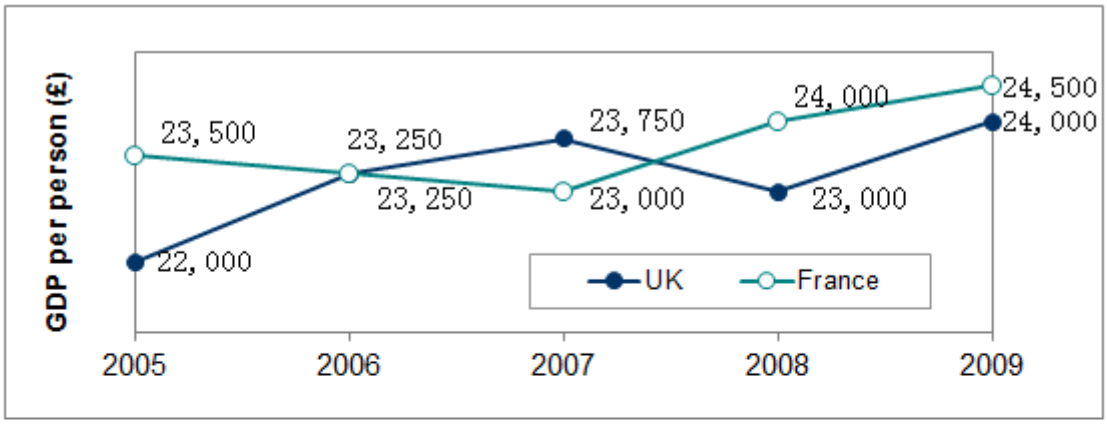
b) Germany's GDP (3.1) is over 20% higher than the France's GDP (2.4). TRUE

c) From the graph, France's GDP per person ranges from £23,500 to £24,500, not the UK's. So this is FALSE.

d) The average GDP per country for the 5 countries shown is (2.05 + 2.4 + 3.1 + 1.4 + 1.95) / 5 = 2.18 TRUE

e) The lowest and highest GDP per person are £20,500 and £25,700 respectively. TRUE

Thus the False answer is (C) "The 2005-2009 range of UK GDP per person is £23,500-£24,500."



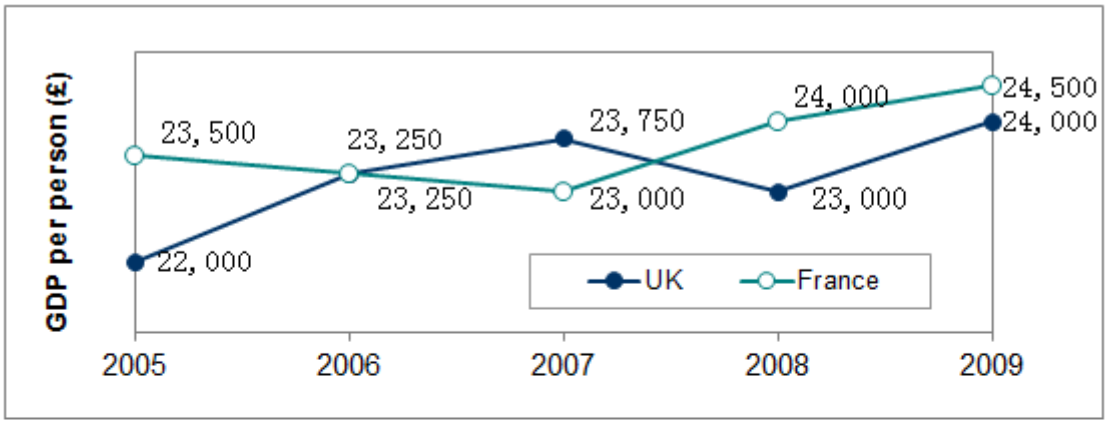
2009	Country's Gross Domestic Product (£billion)	GDP Per person (£1000s)
UK	2.05	24
France	2.4	24.5
Germany	3.1	25.7
Spain	1.4	20.5
Italy	1.95	23.6

Q20 Which two countries had the smallest difference in GDP per person in 2009?

(A) UK, Italy
(B) France, Italy
(C) Germany, Italy
(D) Spain, Italy
(E) Spain, France

Step 1 *- From looking at the table Country Gross Domestic Product there is only a 0.4 difference in GDP per person between the UK (24.0) and Italy (23.6)*

Thus the correct answer is (A) UK, Italy



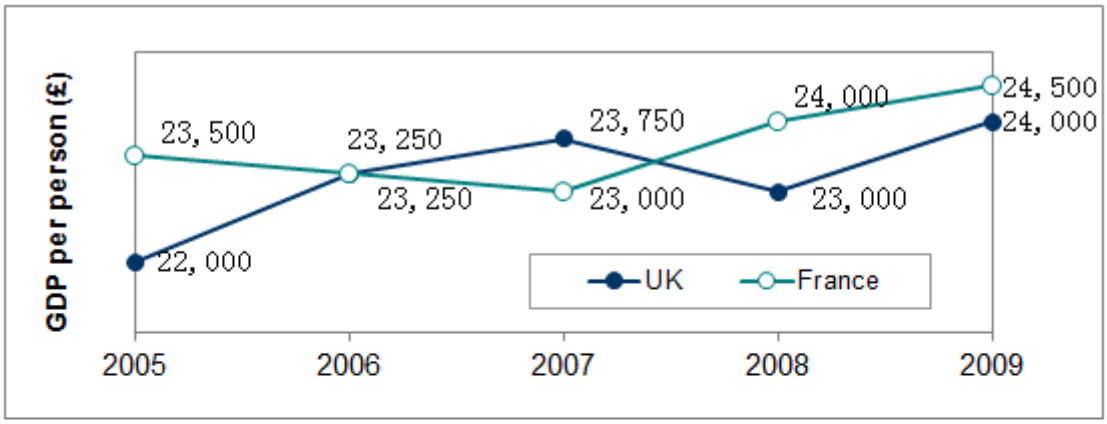
2009	Country's Gross Domestic Product (£billion)	GDP Per person (£1000s)
UK	2.05	24
France	2.4	24.5
Germany	3.1	25.7
Spain	1.4	20.5
Italy	1.95	23.6

Q22 Of those shown, between which years were the GDPs per person increasing in both France and the UK?

(A) 2008-2009
(B) 2007-2008
(C) 2006-2007
(D) 2005-2006
(E) Cannot tell from data

Step 1 *- Look at the direction of the lines representing the UK and France (on the line graph). For both the France and the UK to be increasing the lines need to both be pointing upwards. This is only true for 2008-2009.*

Thus the correct answer is (A) 2008-2009



2009	Country's Gross Domestic Product (£billion)	GDP Per person (£1000s)
UK	2.05	24
France	2.4	24.5
Germany	3.1	25.7
Spain	1.4	20.5
Italy	1.95	23.6

Q23 What was the average GDP per person for France and the UK across the 5 years shown?

(A) £23,500 (France); £23,200 (UK)
(B) £23,650 (France); £23,500 (UK)
(C) £23,500 (France); £23,000 (UK)
(D) £23,000 (France); £23,500 (UK)
(E) £23,650 (France); £23,200 (UK)

Step 1 *- Calculate the average as shown in the table below:*

Year	*UK*	*France*
2005	*22000*	*23500*
2006	*23250*	*23250*
2007	*23750*	*23000*
2008	*23000*	*24000*
2009	*24000*	*24500*
TOTAL	***116000***	***118250***
AVERAGE	***23200***	***23650***

Thus the correct answer is (E) £23,650 (France); £23,200 (UK)

ABSTRACT REASONING TEST 1

Instructions

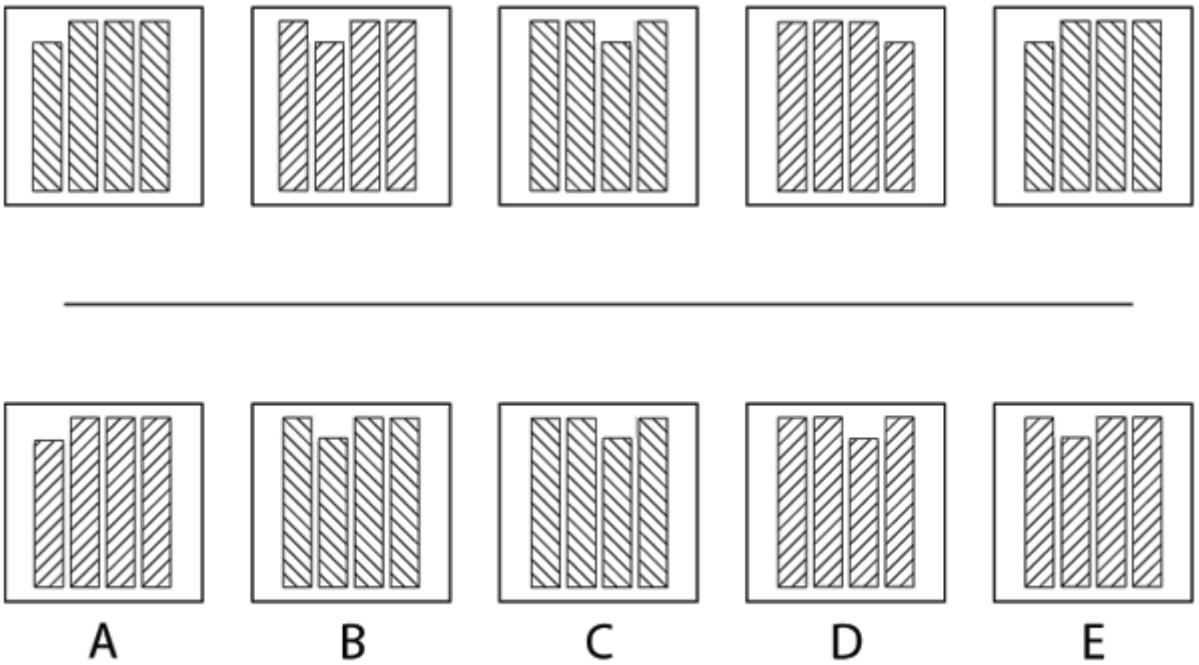
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

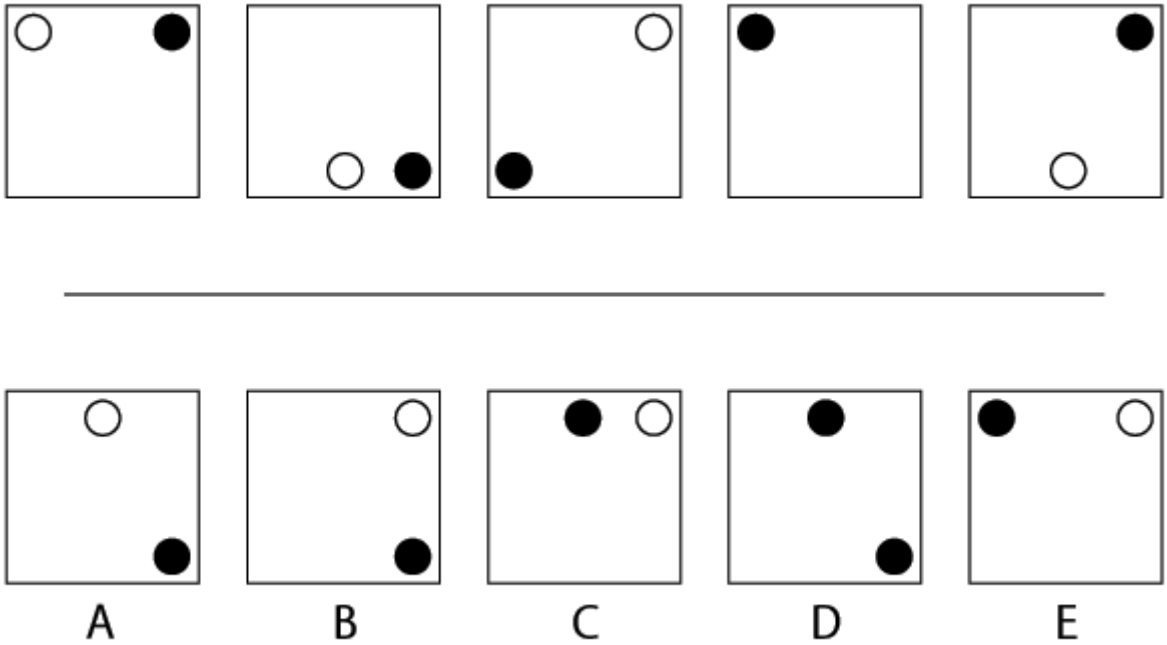
Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**



Q1 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

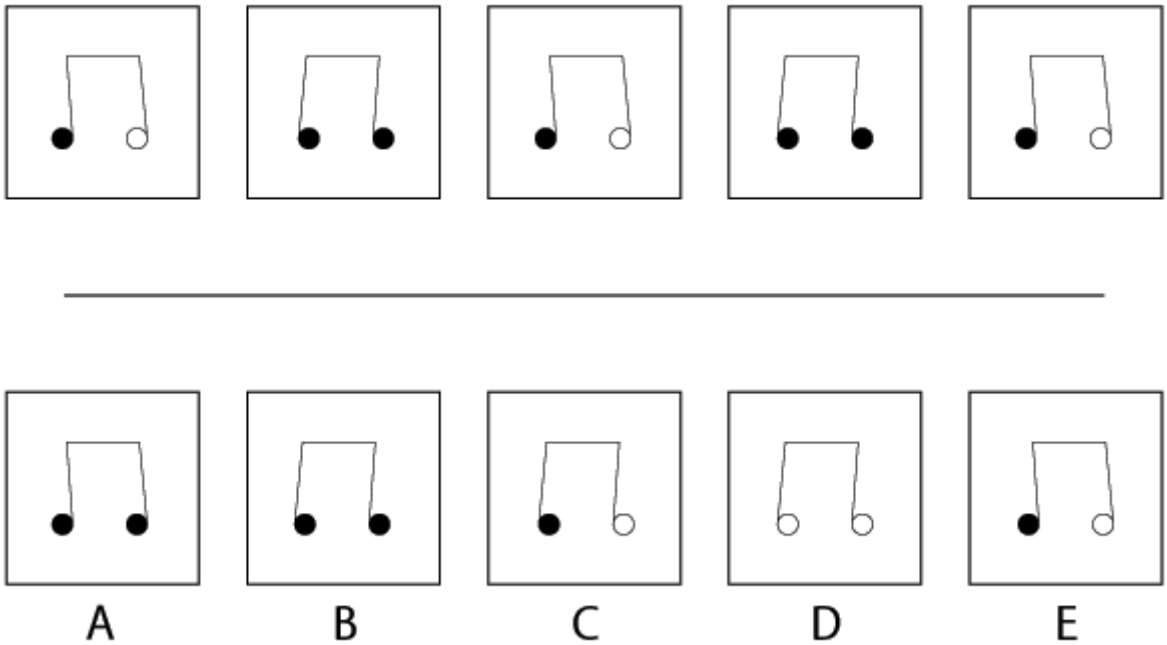
Rule 1: The direction of the lines alternates between NW-SE and NE-SW.
Rule 2: The short column moves one place to the right each time.



Q2 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

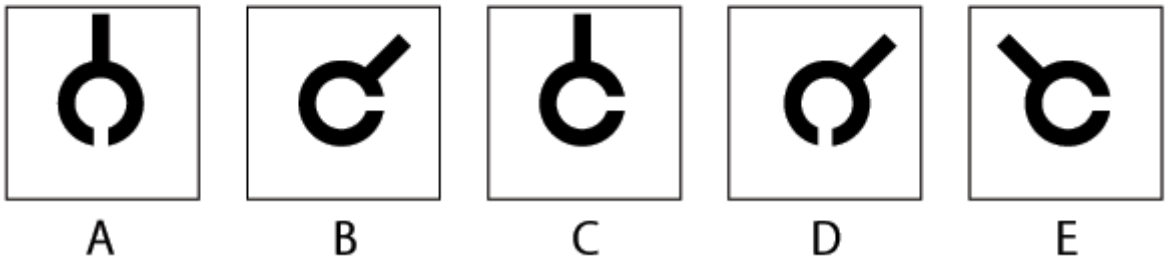
Rule 1: The unshaded circle moves from top left, to bottom middle, to top right, and then the pattern repeats.
Rule 2: The shaded circle moves one place clockwise each time.



Q3 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

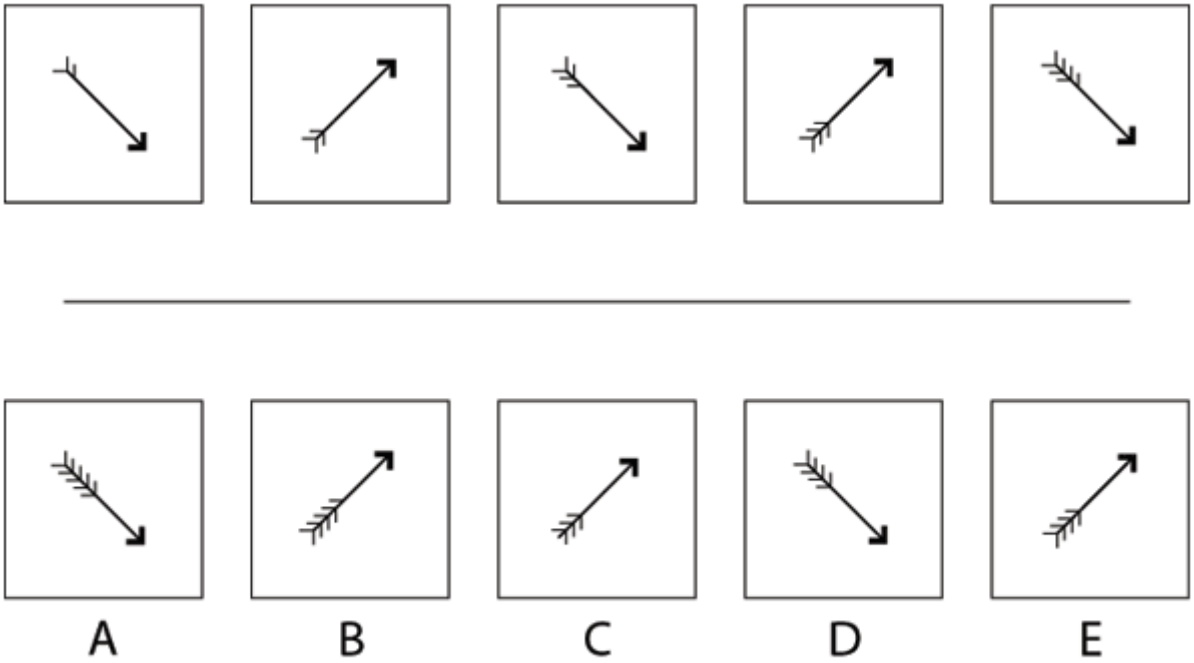
Rule 1: The symbol alternates between facing right and left.
Rule 2: The right sided circle alternates between shaded and unshaded.



Q4 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

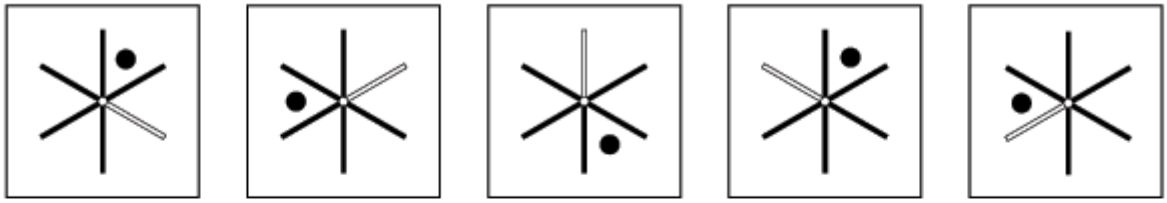
Rule 1: The black line rotates 135˚ clockwise around the circle.
Rule 2: The missing segment moves one place counterclockwise around the circle each time.

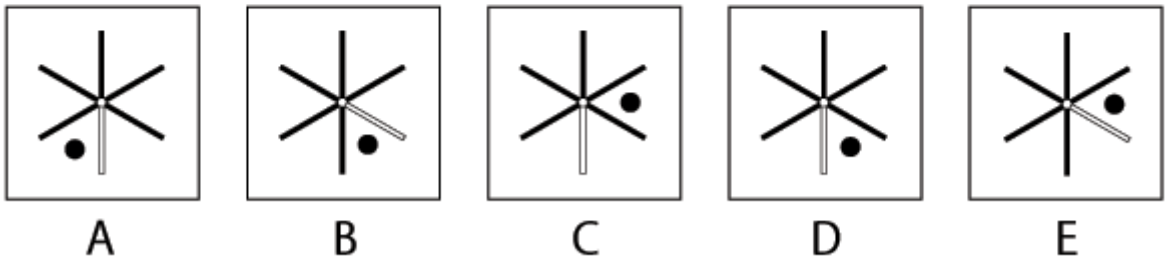


Q5 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow alternates between pointing North-East and South-East.
Rule 2: The number of notches on the arrow increases by one each time.

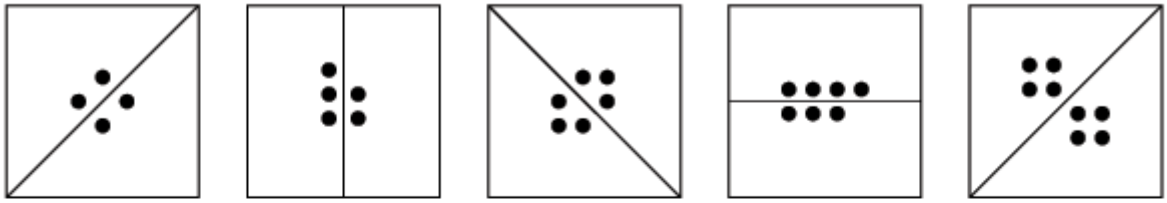


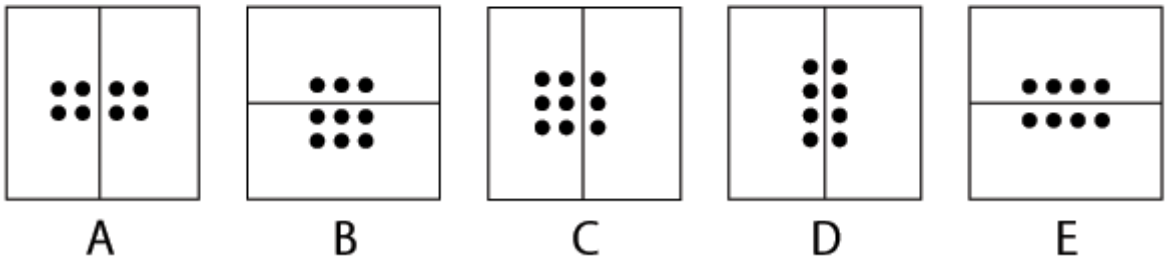


Q6 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The unshaded bar moves one places counterclockwise each time.
Rule 2: The circle moves two places counterclockwise each time.

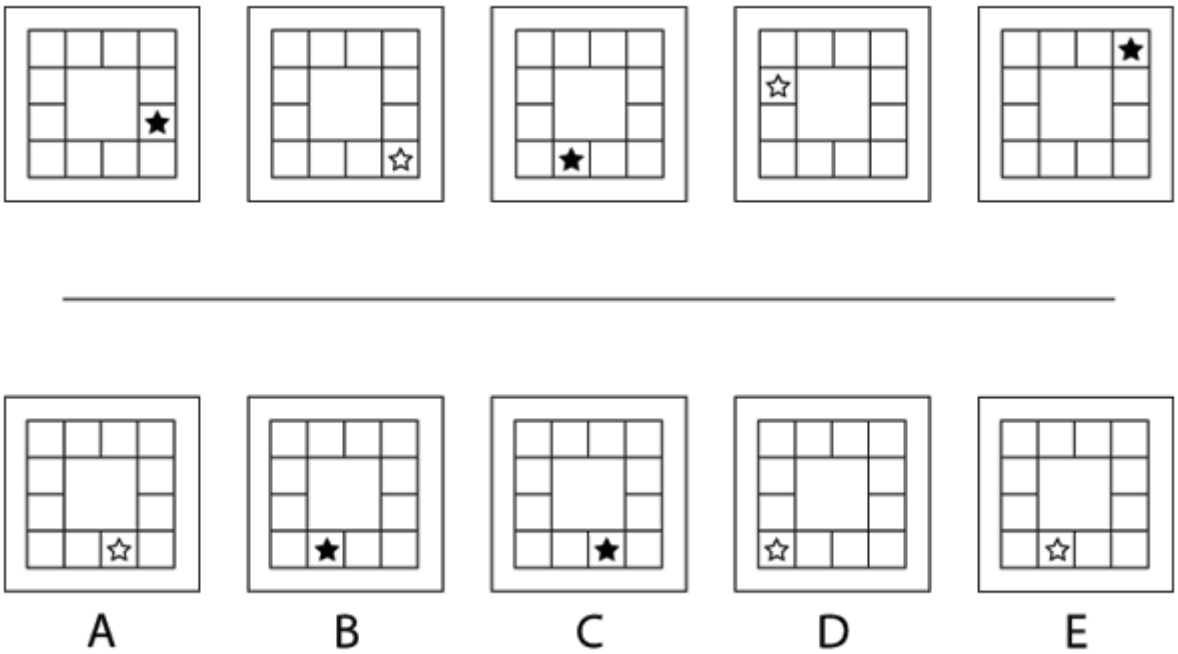




Q7 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

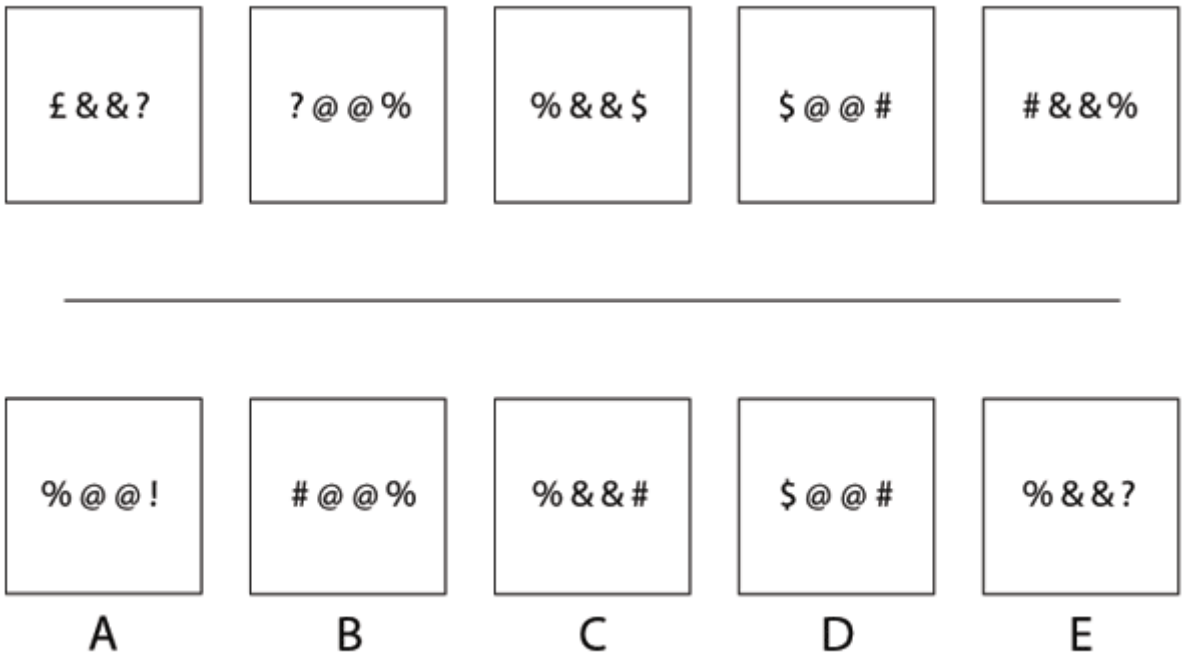
Rule 1: The dividing line in the box rotates 45˚ counterclockwise each time.
Rule 2: The total number of shaded circles increases by one each time.



Q8 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

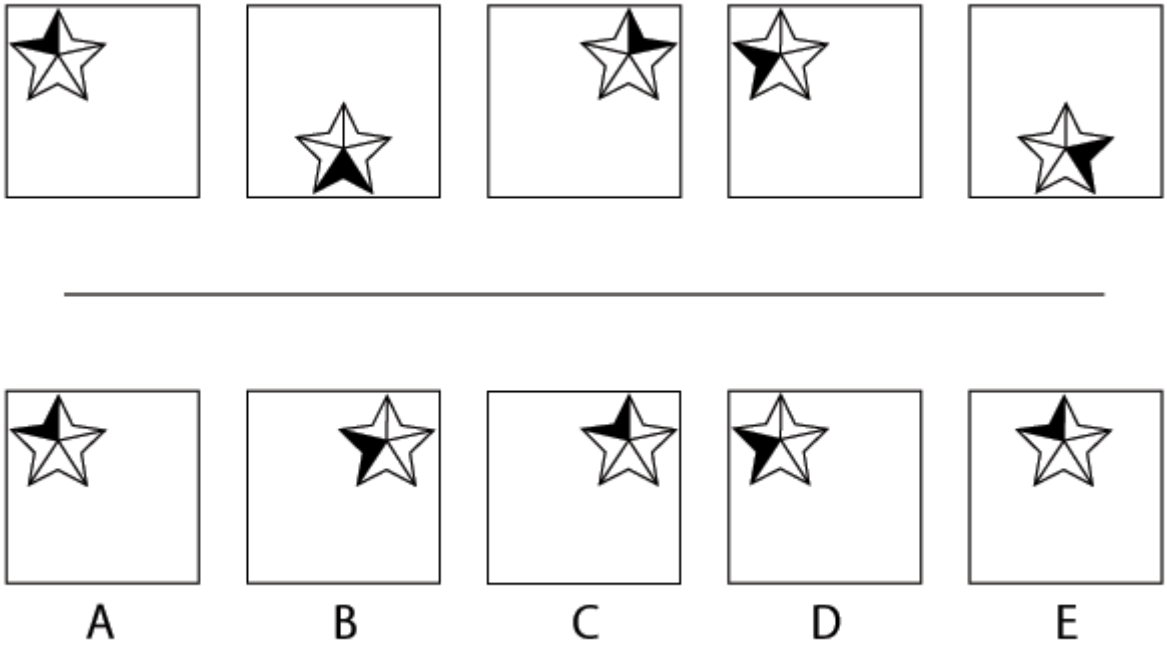
Rule 1: The star alternates between shaded and unshaded.
Rule 2: The star moves clockwise 1 place, then 2 places, then 3 places and so on.



Q9 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

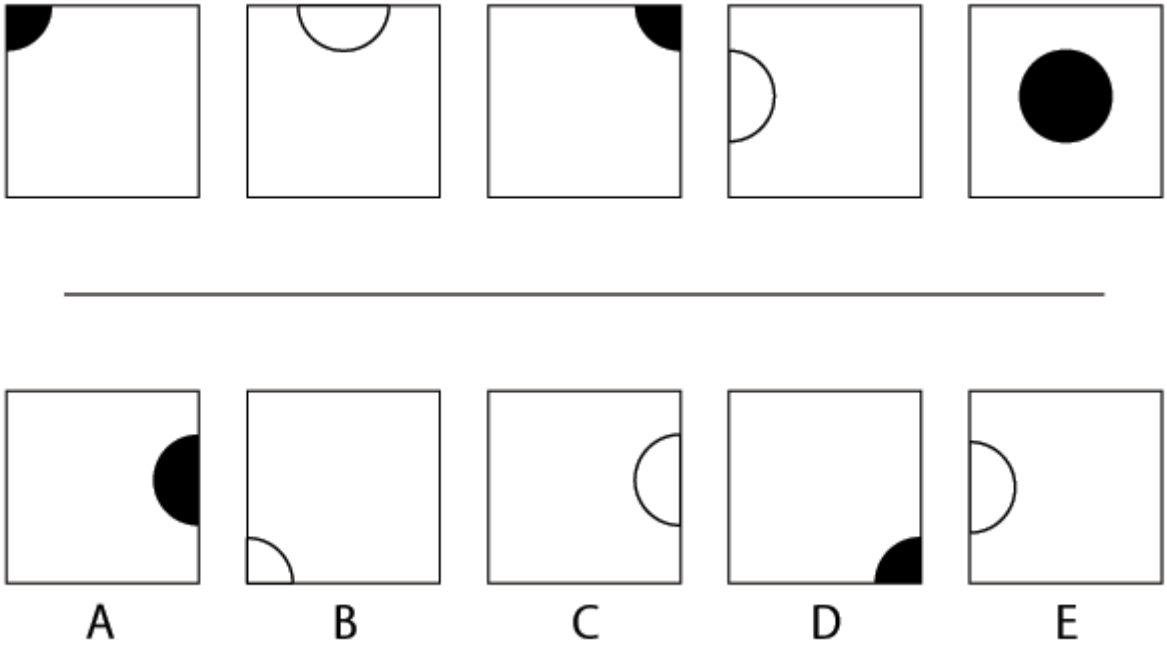
Rule 1: The middle two symbols alternate between “@ @” and “& &”.
Rule 2: The final symbol in the sequence is the first symbol of the next sequence.



Q10 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

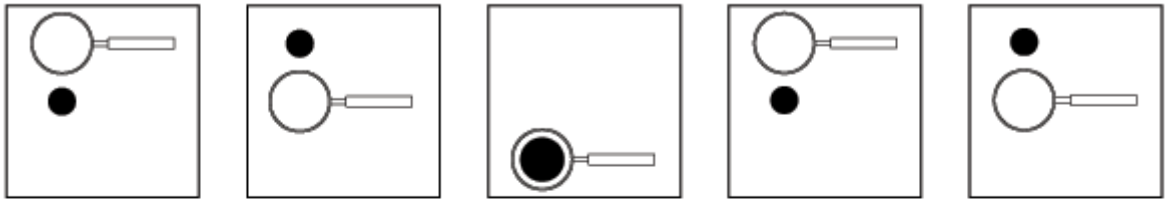
Rule 1: The star symbol moves from top left, to bottom centre, to top right, and then the pattern repeats.
Rule 2: The shaded segment of the star moves two places counterclockwise each time.

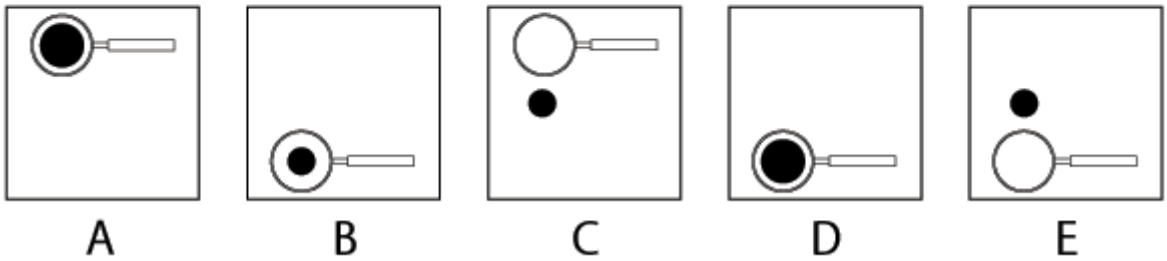


Q11 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The circle moves one place to the right each time, and then begins again on the next row.
Rule 2: The circle alternates between shaded and unshaded.



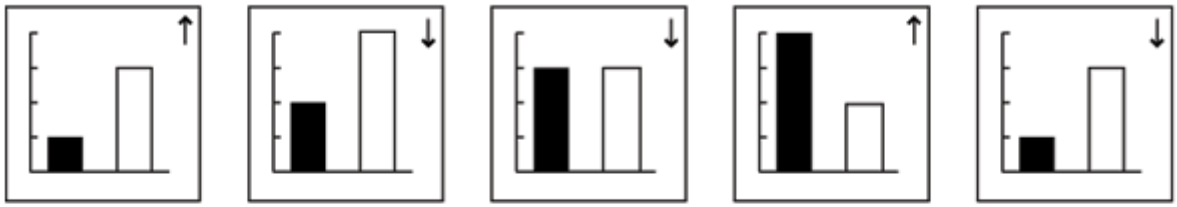


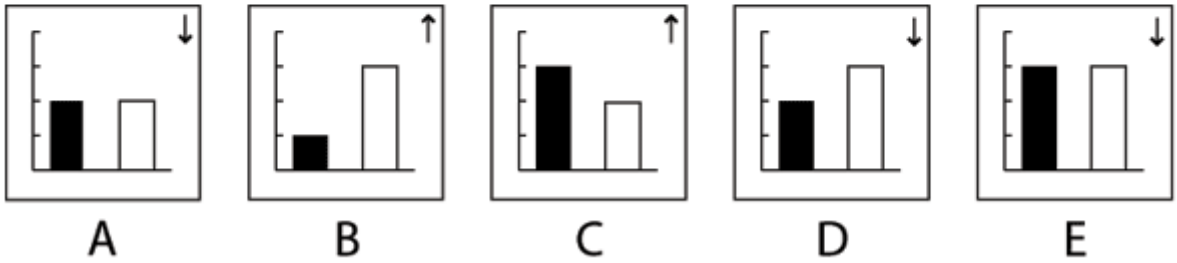
Q12 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The black circle moves up one place each time. When it reaches the top of the box, it begins again from the bottom.

Rule 2: The magnifying glass moves down one place each time, beginning again from the top. Additionally, when the magnifying glass is placed above the circle, the circle is magnified.

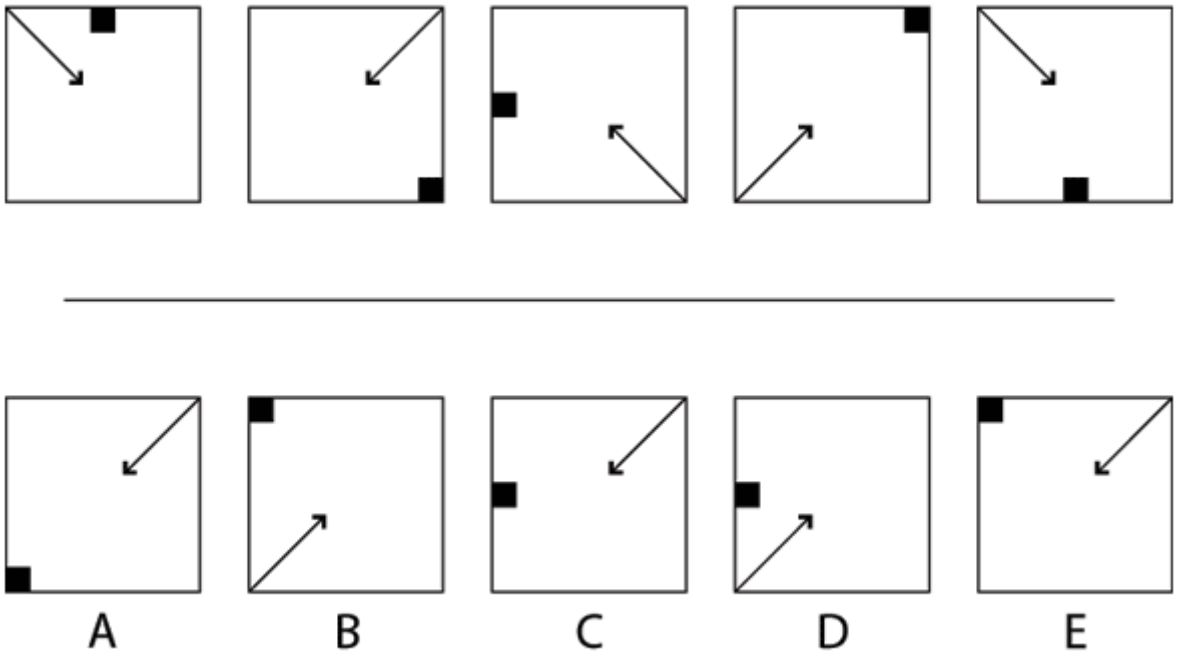




Q13 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

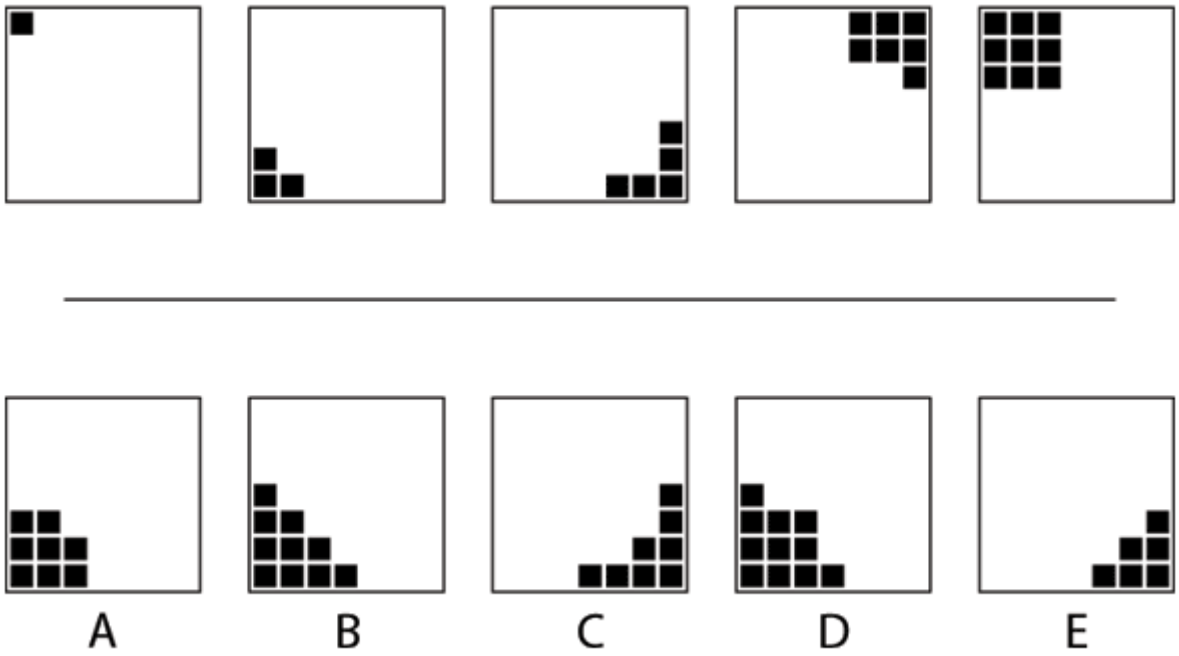
Rule 1: The shaded block increases one place each time. When it reaches the top of the graph the pattern repeats.
Rule 2: The arrow in the top right corner determines whether the next unshaded block will move up or down one place.



Q14 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The black square moves three places clockwise around the box each time (including corners and middle).
Rule 2: The arrow moves clockwise to the next corner each time.



Q15 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

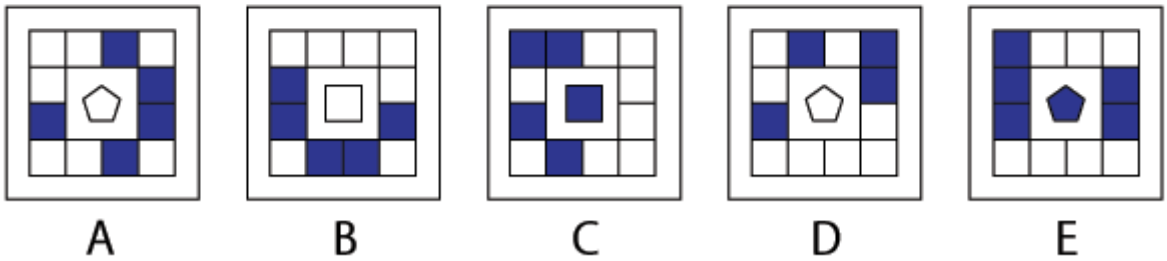
Rule 1: The shaded squares move counterclockwise to the next corner each time.
Rule 2: The total number of shaded squares increases by two each time.

A B C D E

Q16 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

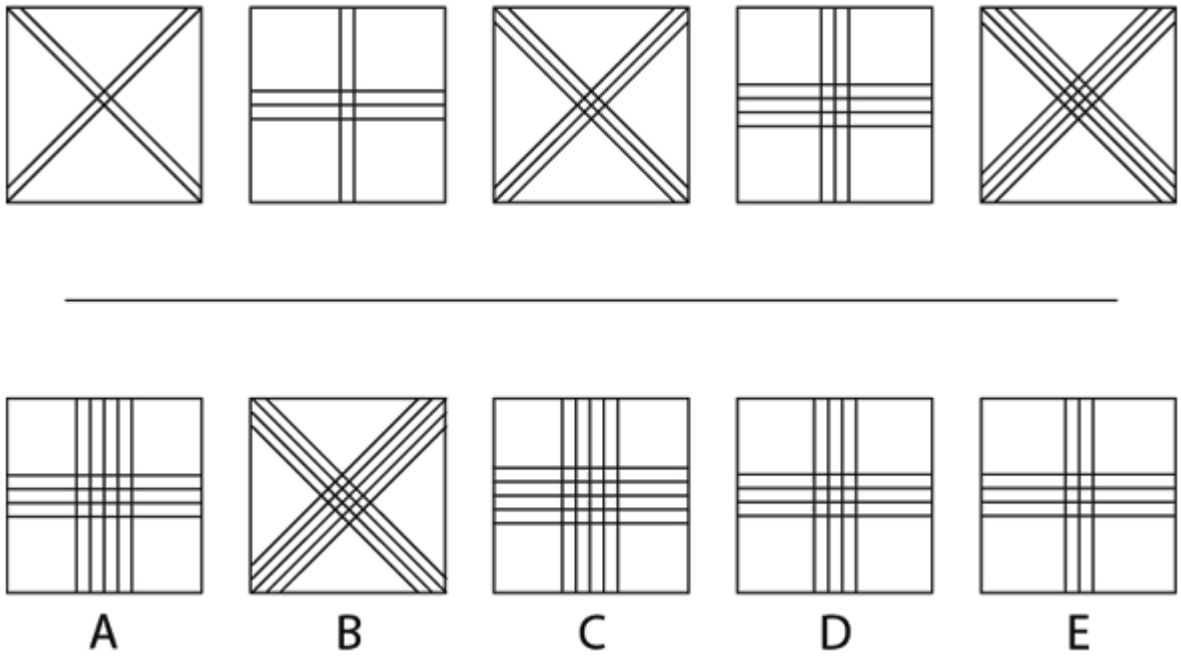
Rule 1: The total number of stars in each box increases by one each time.
Rule 2: The total number of circles alternates between 4 and 5.



Q17 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

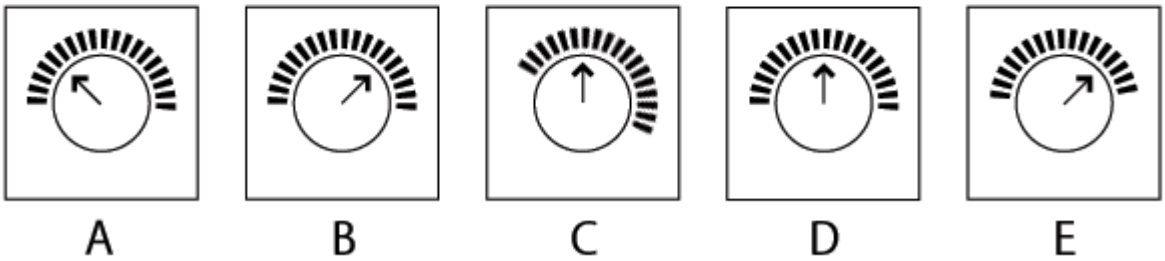
Rule 1: The total number of edges of the centre shape is equal to the number of shaded squares in each box.
Rule 2: The centre shape alternates between shaded and unshaded.



Q18 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

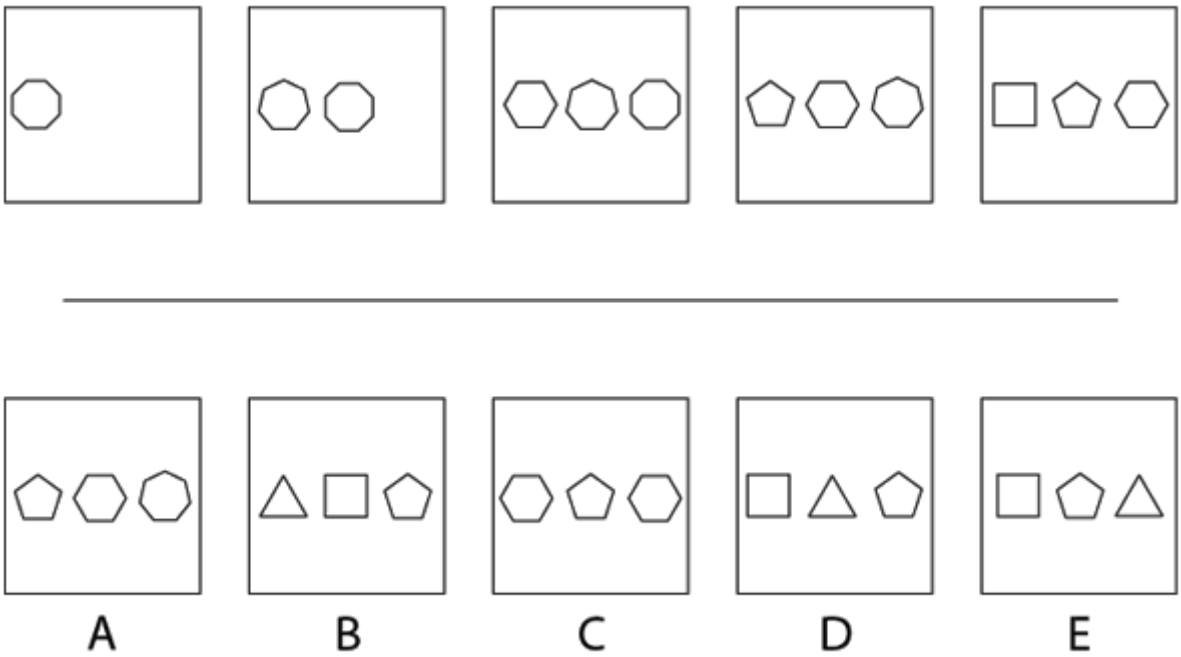
Rule 1: The lines rotate 45˚ each time.
Rule 2: The total number of lines increases by one each time.



Q19 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

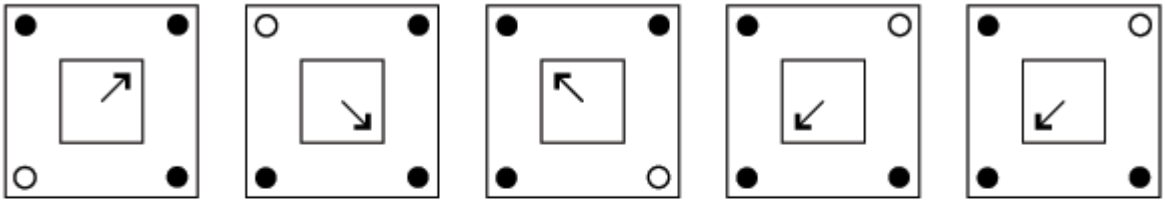
Rule 1: The arrow rotates 3 places (135˚) clockwise each time.
Rule 2: The total number of notches around the circle increases by 3 each time, with the start point at the 9 o'clock position.

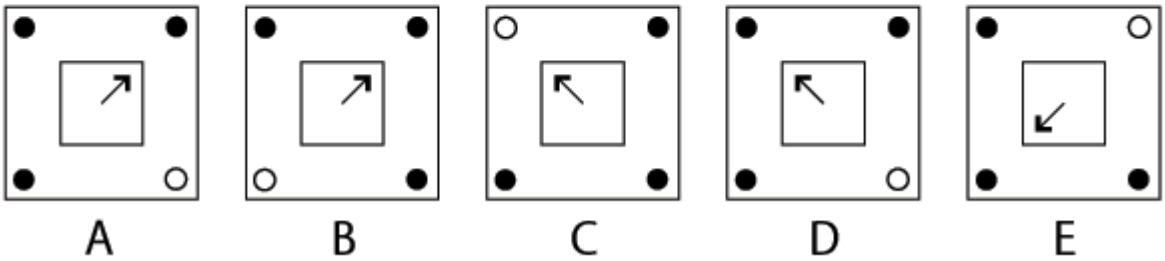


Q20 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shapes move one place to the right each time.
Rule 2: Each shape is followed by a shape with one less edge.

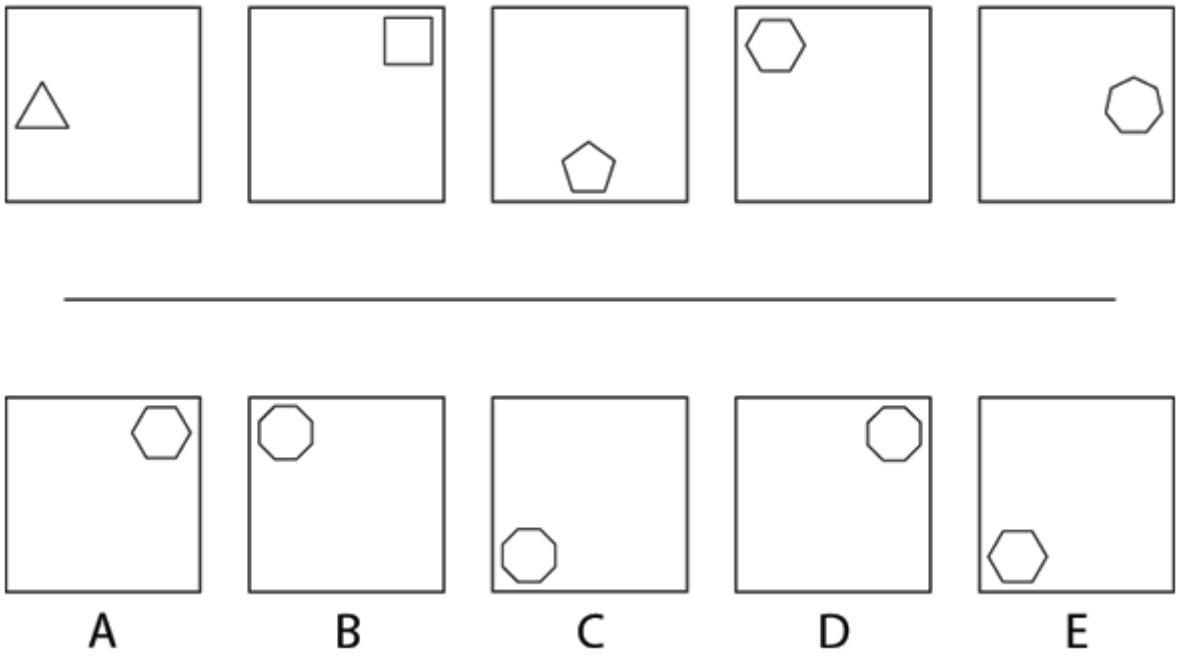




Q21 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

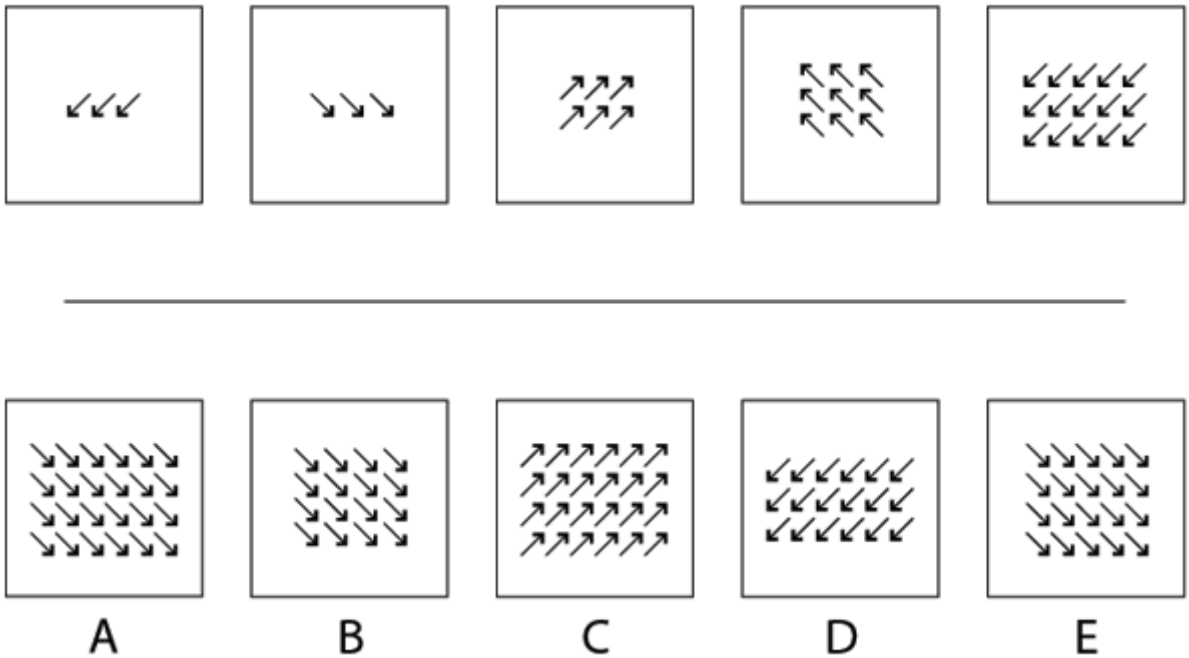
Rule 1: The arrow rotates clockwise one place, then two places, then three places and so on, each time.
Rule 2: The circle which is in the opposite corner from where the arrow is pointing is unshaded.



Q22 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

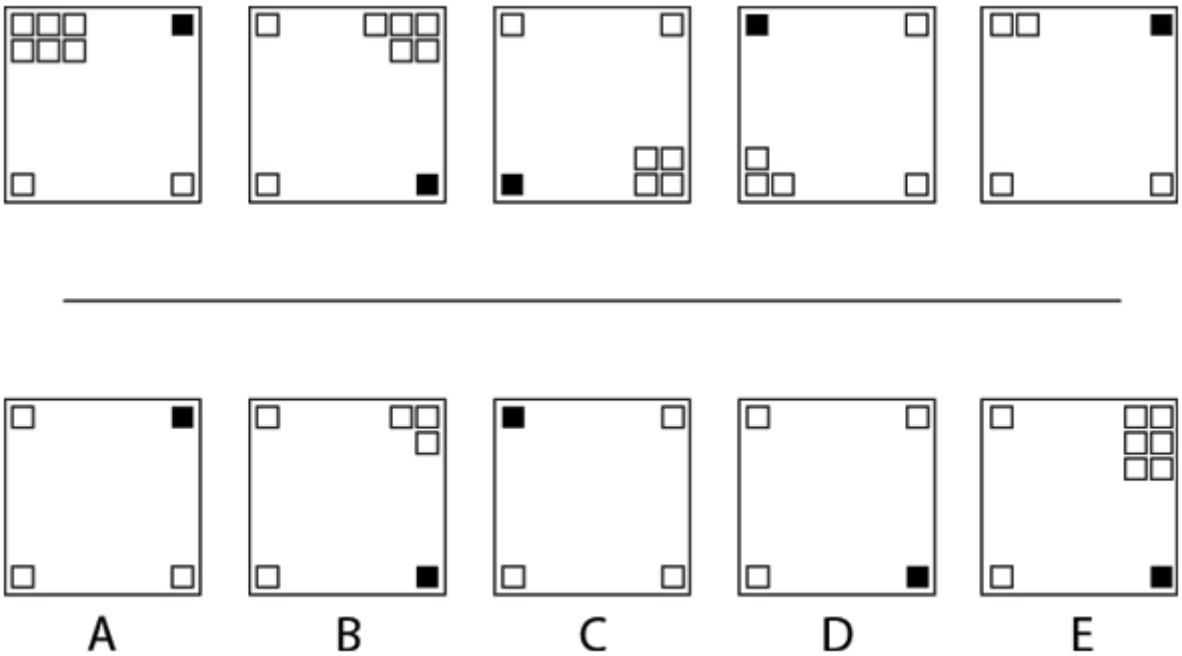
Rule 1: The shape moves three places clockwise each time.
Rule 2: The total number of sides on the shape increases by one each time.



Q23 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

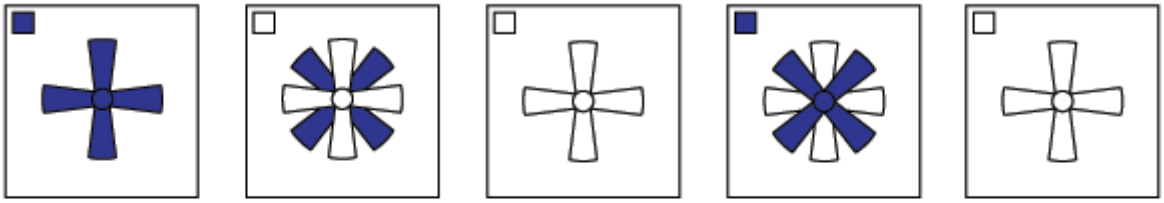
Rule 1: The arrows rotate 90˚ counterclockwise each time.
Rule 2: The number of arrows in each box is equal to the total number of arrows in the previous two boxes.

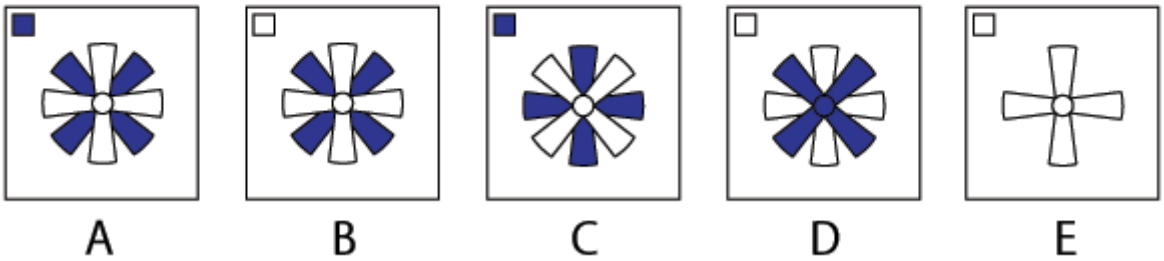


Q24 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The block of 6 squares moves clockwise to the next corner each time, decreasing by one square each time.
Rule 2: The shaded square moves one place clockwise each time.

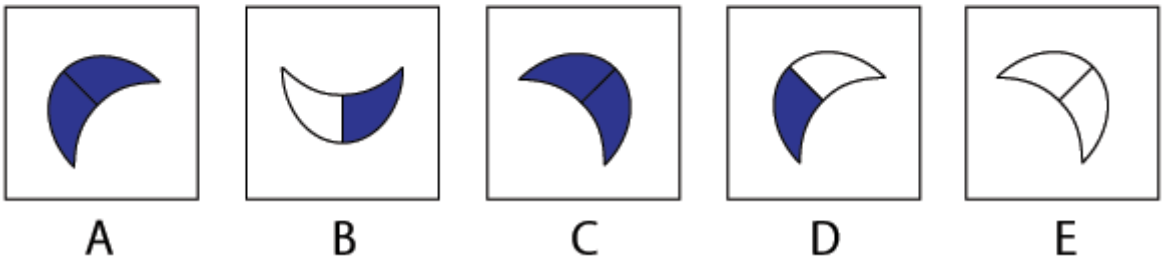




Q25 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

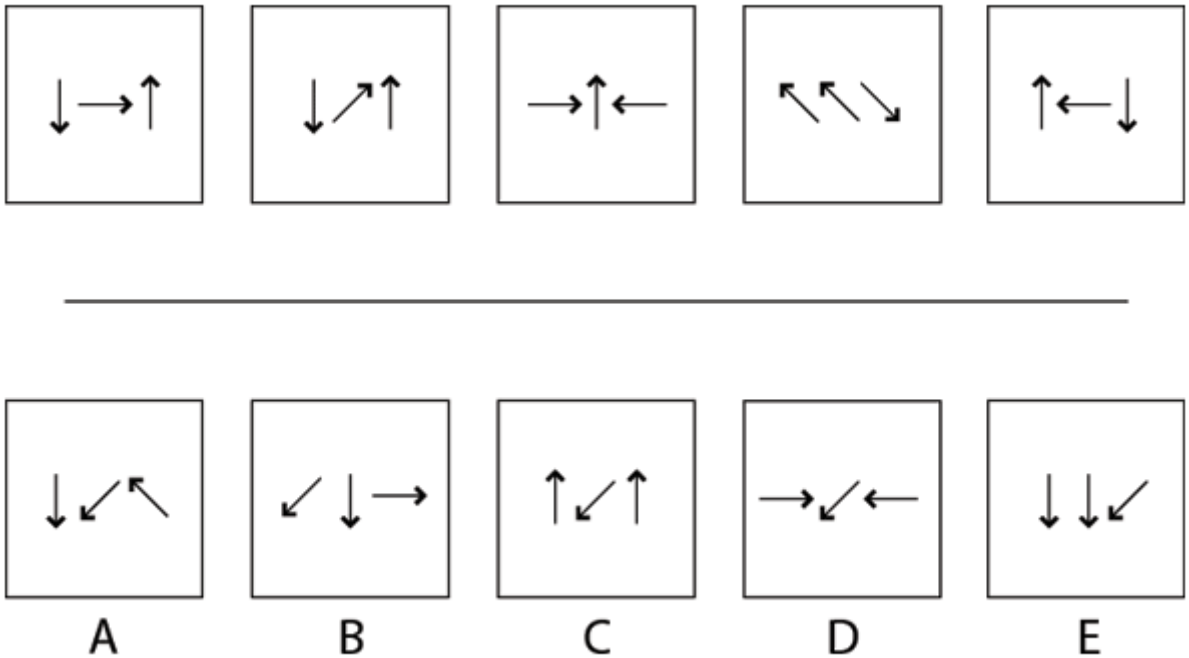
Rule 1: The blue fan rotates 45˚ each time.
Rule 2: The colour of the square at the top left corner indicates which fan is in the foreground.



Q26 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

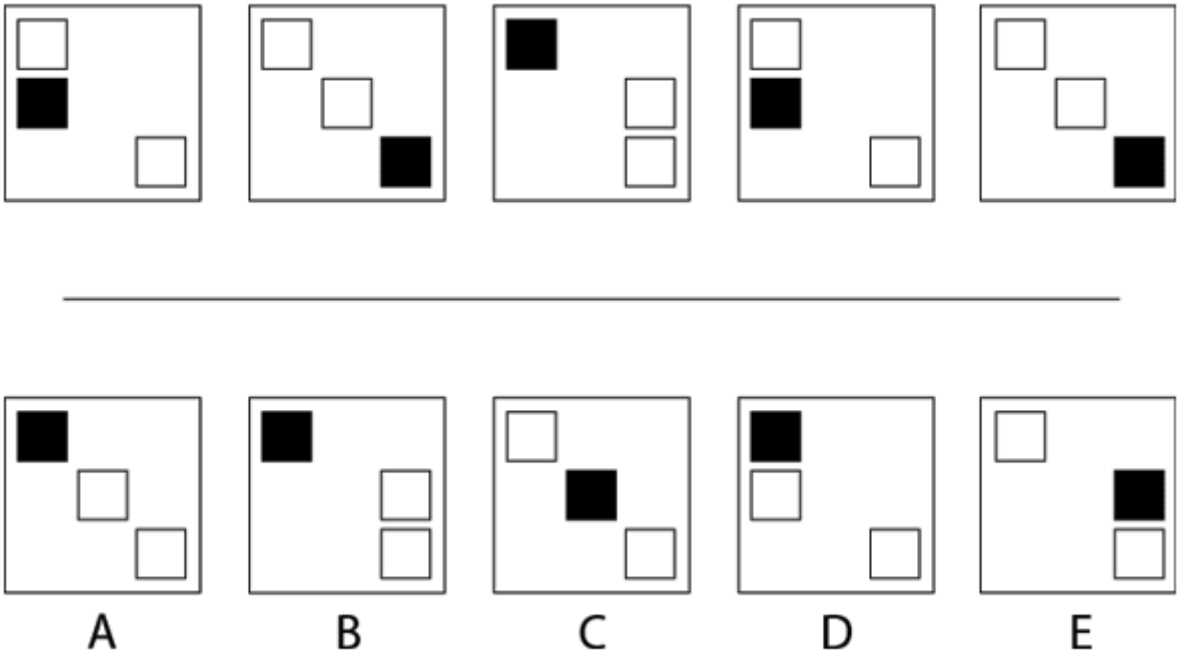
Rule 1: The symbol rotates 135˚ counterclockwise each time.
Rule 2: The total number of shaded halves increases by one each time. After both halves are shaded, the the pattern repeats.



Q27 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

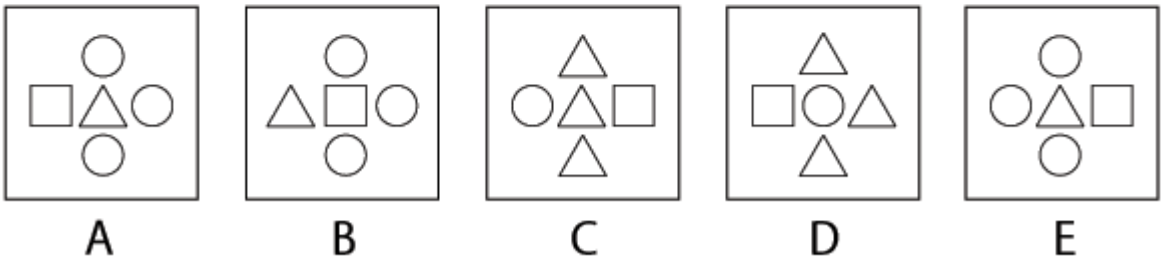
Rule 1: The centre arrow rotates 45˚counterclockwise each time.
Rule 2: The left and right side arrows always point in opposite directions.



Q28 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

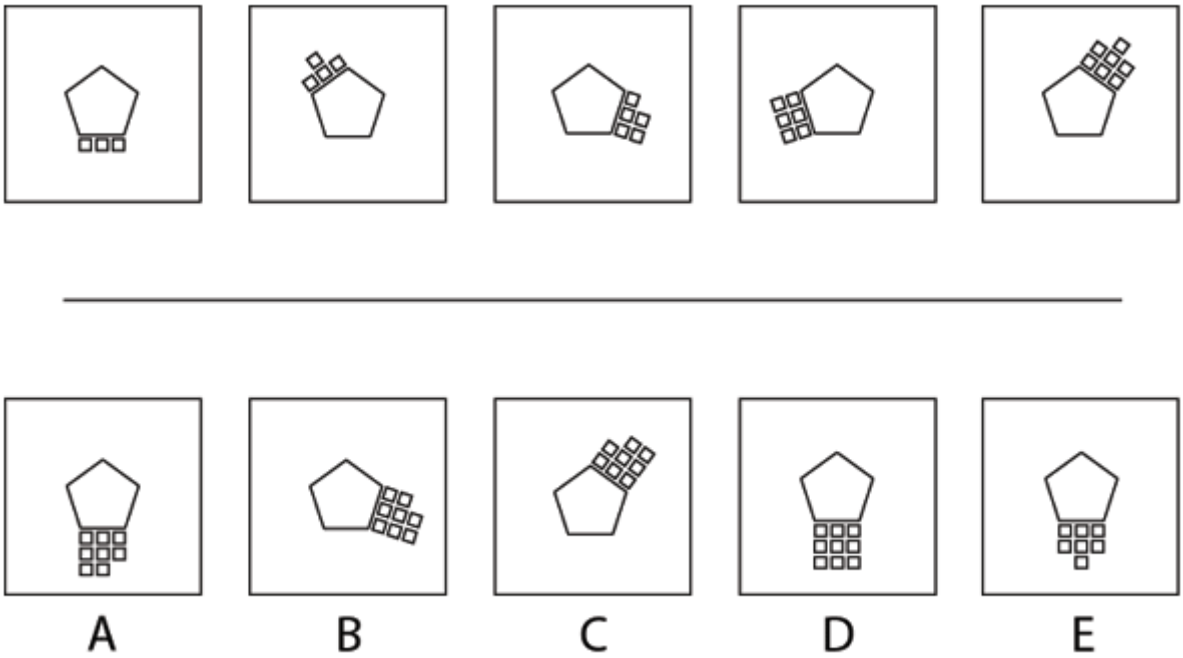
Rule 1: The shaded square moves down one place each time. When it reaches the bottom, it begins again from the top.
Rule 2: The centre square moves one place to the right each time, then the pattern repeats.



Q29 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The top and bottom shapes alternate between triangle and circle.
Rule 2: Each of middle row of shapes moves one place to the left each time.



Q30 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The squares moves two places clockwise each time.
Rule 2: The total number of squares increases by one each time.

-- End of Test --

ABSTRACT REASONING TEST 2

Instructions

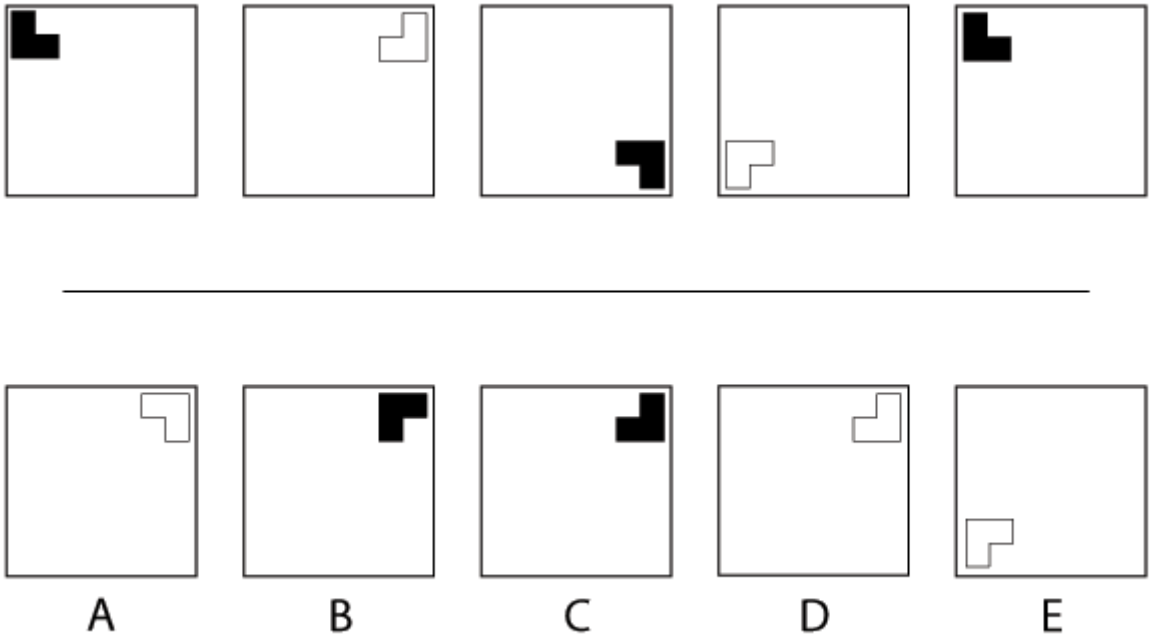
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

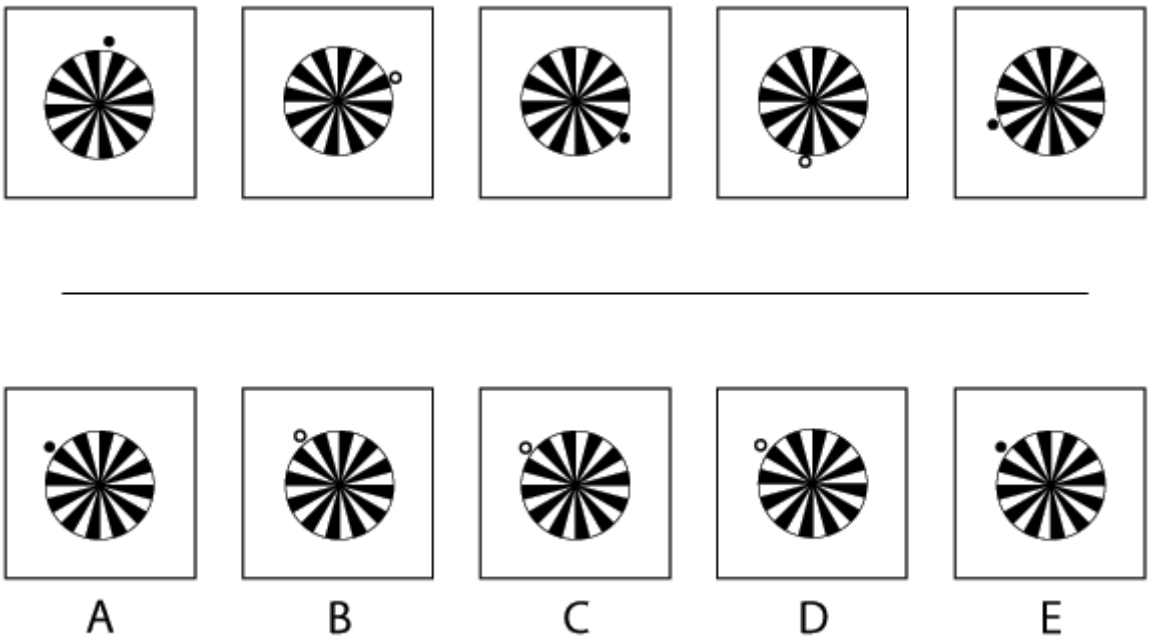
Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**



Q1 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

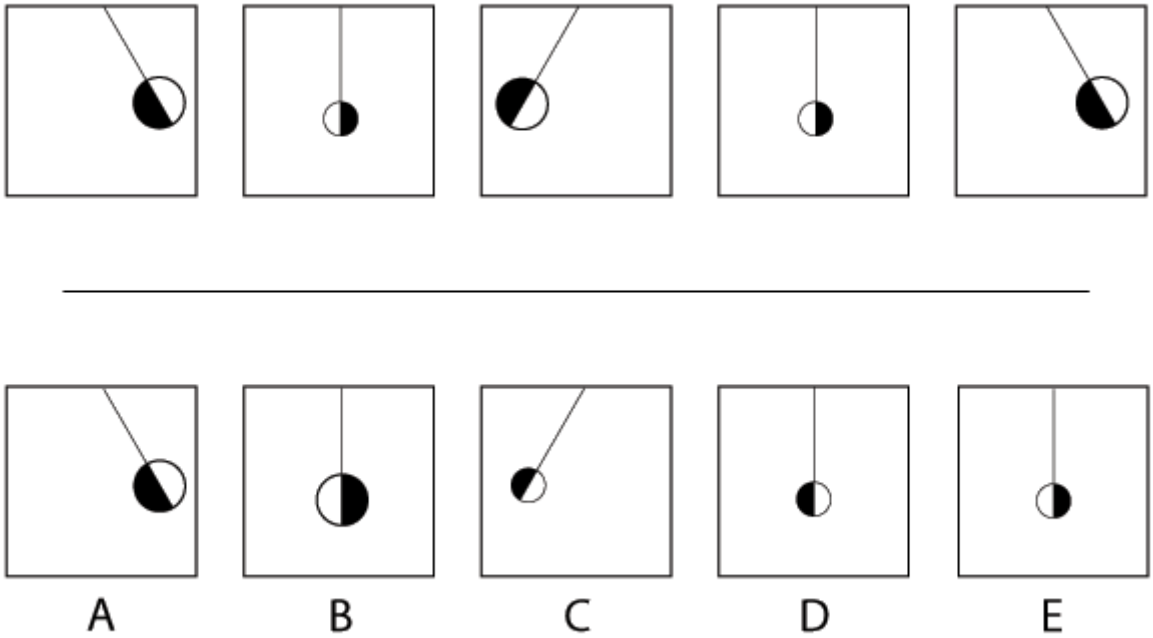
Rule 1: The shape rotates 90˚ counterclockwise each time.
Rule 2: The shape moves clockwise to the next corner.
Rule 3: The shape alternates between shaded and unshaded.



Q2 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

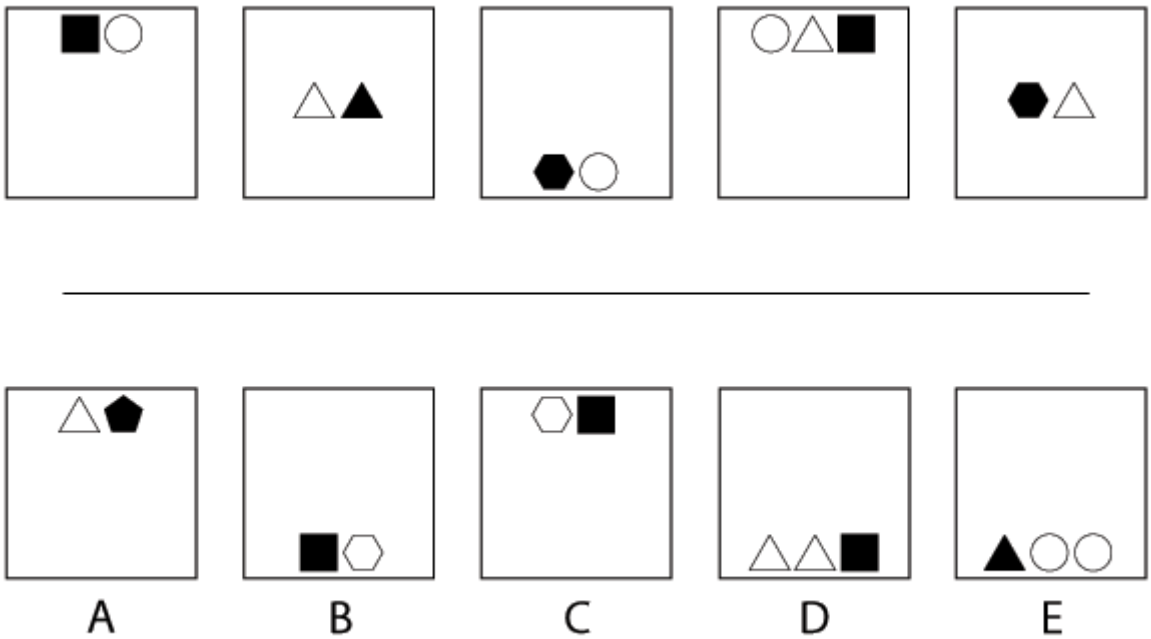
Rule 1: The segments of the symbol alternate between black and white.
Rule 2: The small circle moves clockwise 4 segments each time (60˚).
Rule 3: The small circle alternates between shaded and unshaded.



Q3 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

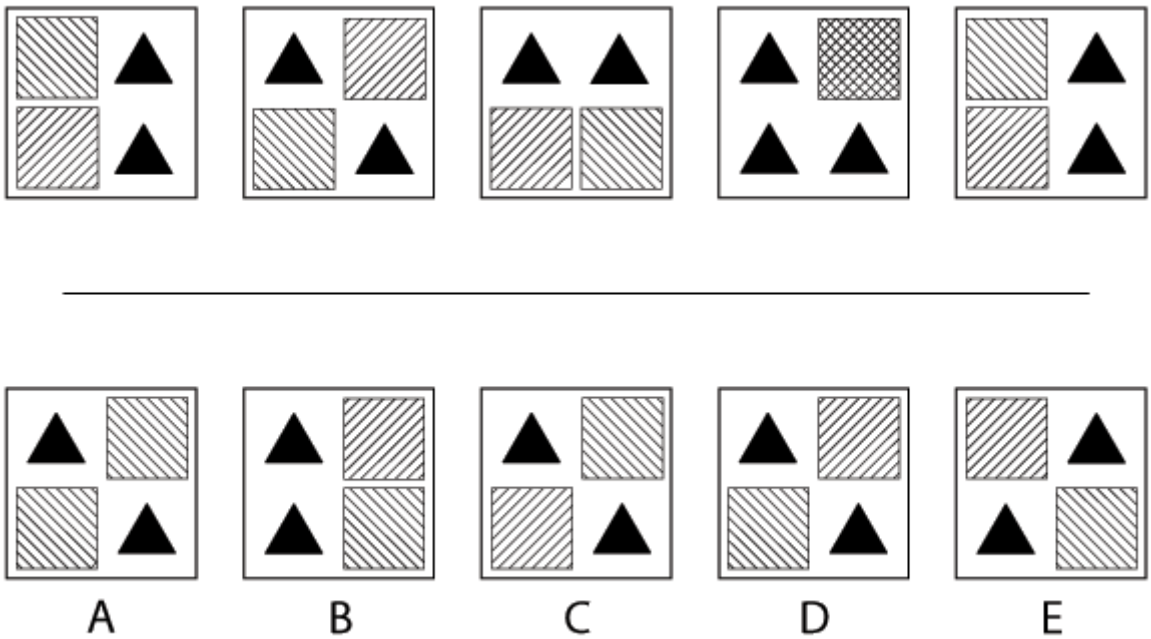
Rule 1: The pendulum swings from right to middle to left and back again.
Rule 2: The halves of the circle alternate between black and white.
Rule 3: The pendulum alternates between large and small.



Q4 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

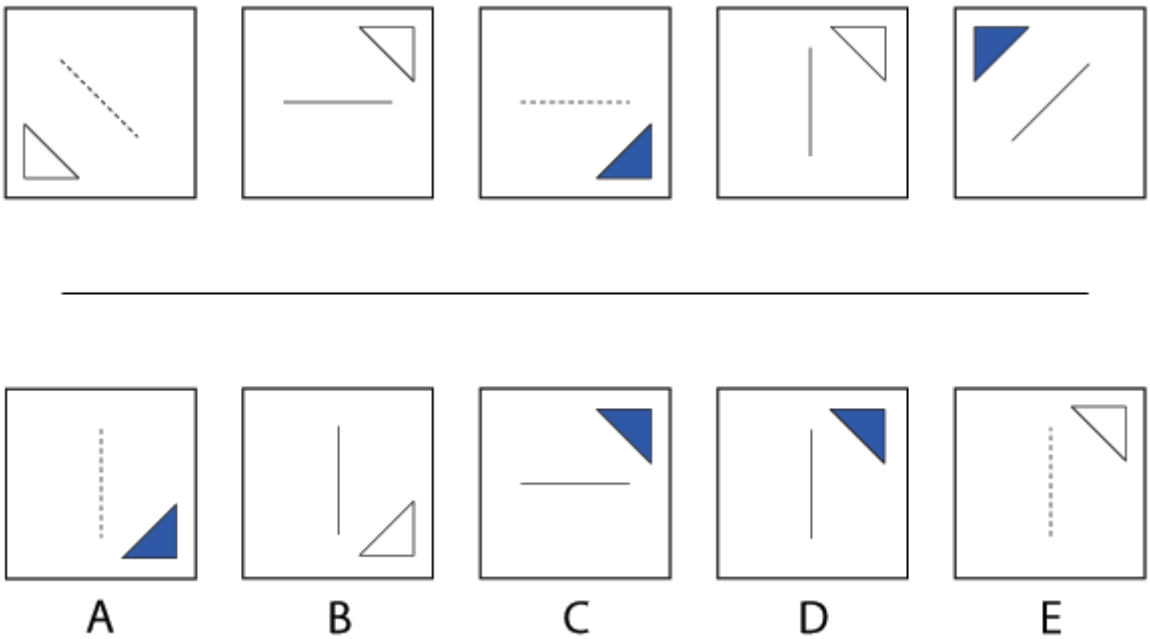
Rule 1: In each box, the shapes' total number of edges increases by one.
Rule 2: The shapes move from top to middle to bottom and then start again from the top.
Rule 3: The shading alternates between the first and last shape of each box.



Q5 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

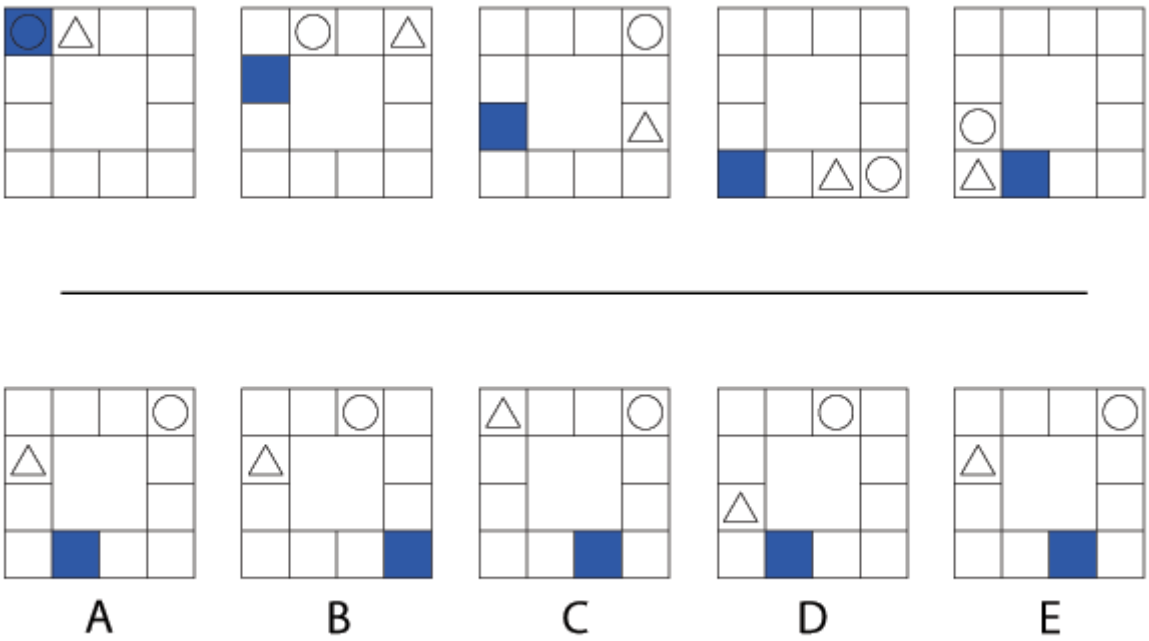
Rule 1: The NW-SE lined box moves counterclockwise to the next corner.
Rule 2: The NE-SW lined box alternates between bottom left corner and top right corner.
Rule 3: The empty quarters of every box are filled with a black triangle.



Q6 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

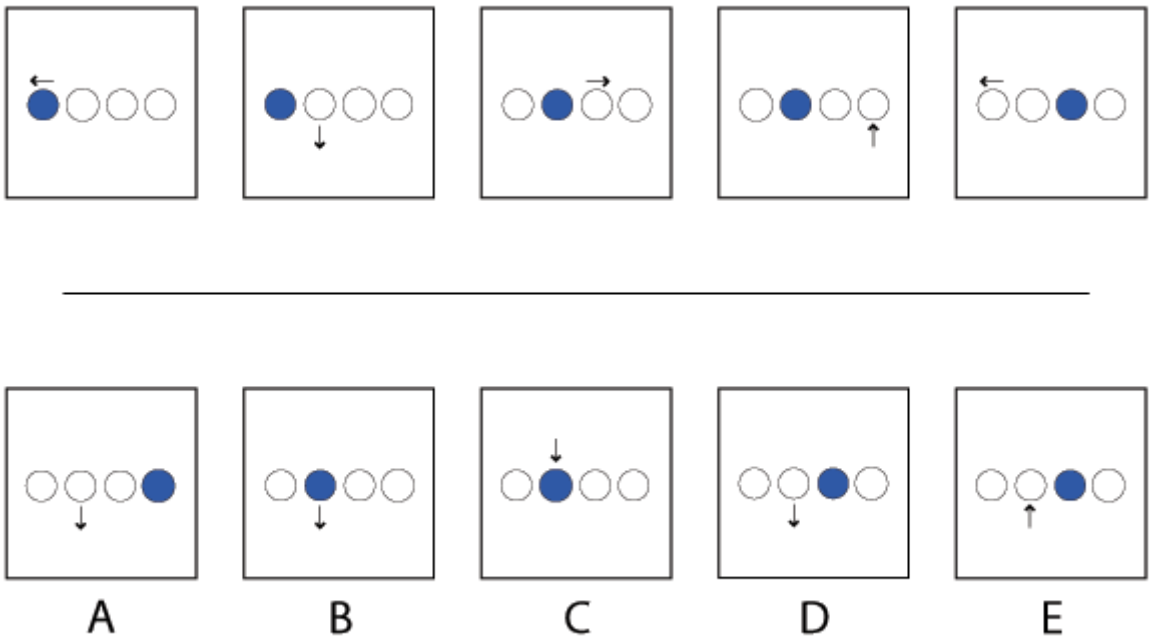
Rule 1: The middle line indicates where the next triangle will be; the triangle is mirrored in the axis of the line.
Rule 2: When the middle line is solid, the next triangle is shaded.
Rule 3: When the middle line is dotted, the next triangle is not shaded.



Q7 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

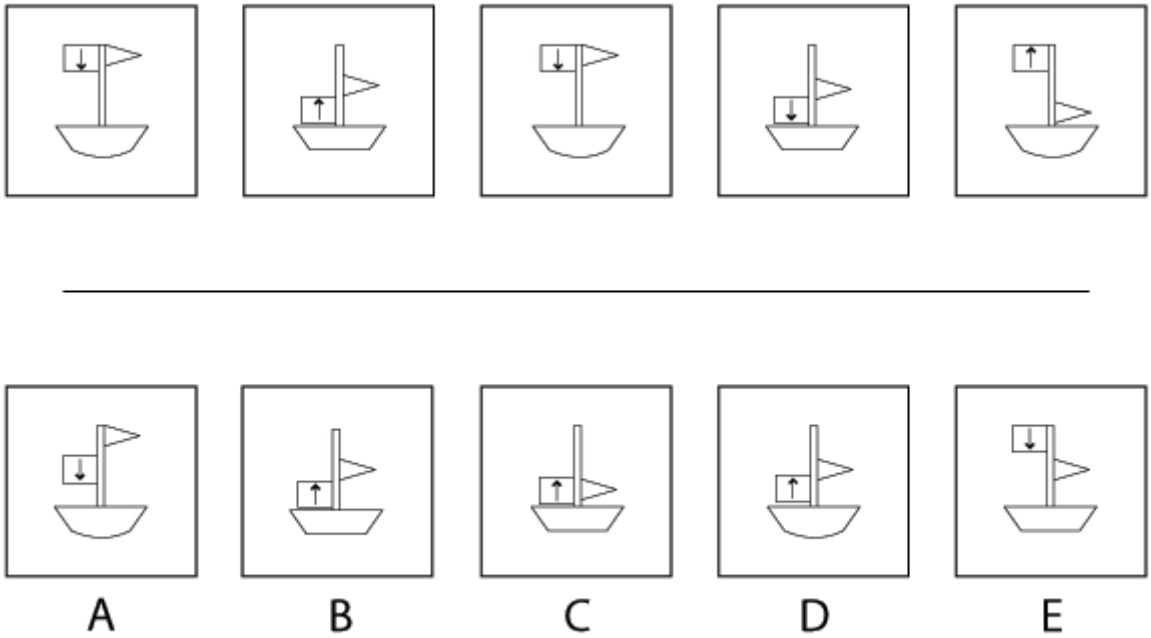
Rule 1: The circle moves 1, then 2, then 3, and so on, places clockwise.
Rule 2: The triangle moves clockwise two places.
Rule 3: The shaded box moves counterclockwise one place.



Q8 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

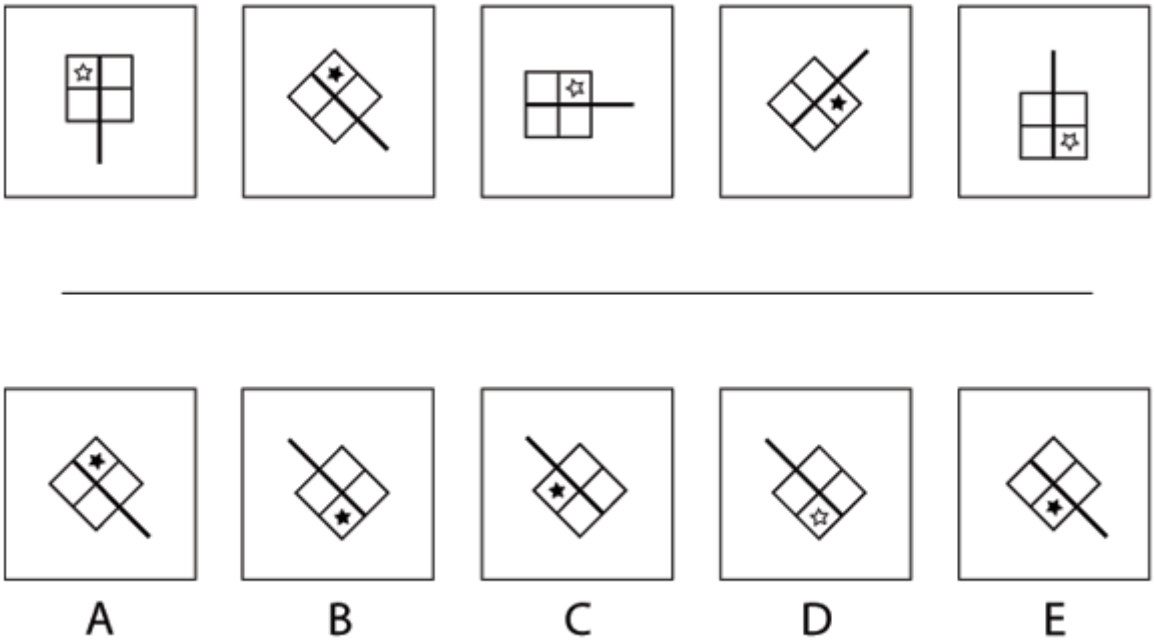
Rule 1: The shaded circle moves one place to the right every two boxes.
Rule 2: The arrow rotates 90˚ counterclockwise.
Rule 3: The arrow alternates between being above and below the circles.



Q9 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

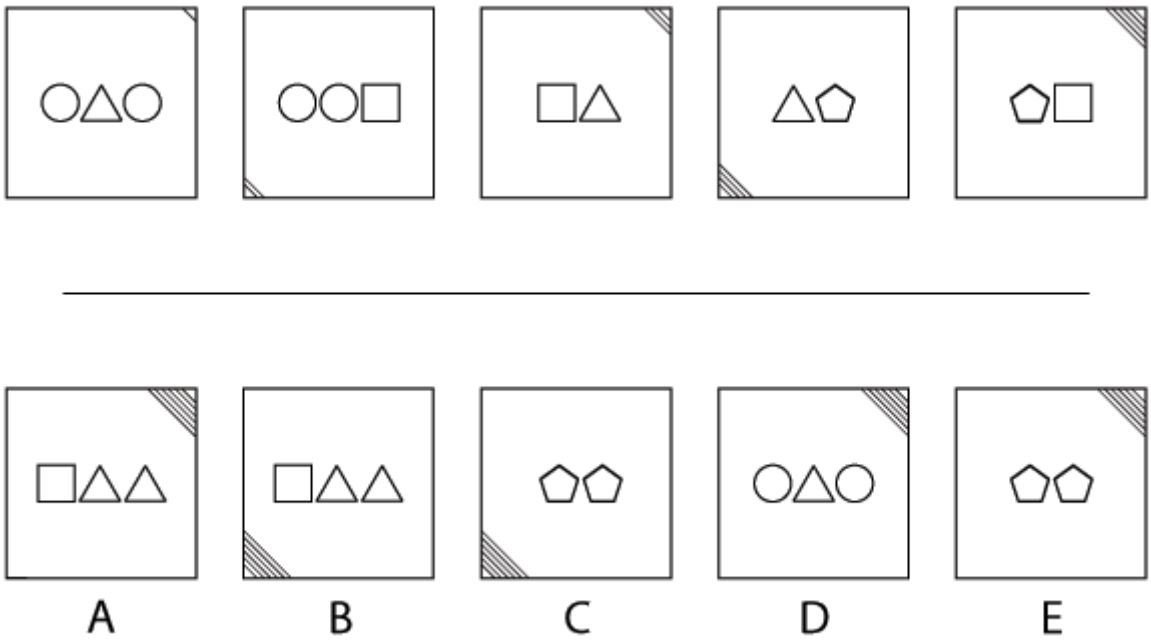
Rule 1: The bottom of the boat alternates between flat and rounded.
Rule 2: The square flag alternates between being raised to the top and raised to the bottom.
Rule 3: The arrow in the square flag indicates where the next triangular flag should be moved to.



Q10 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

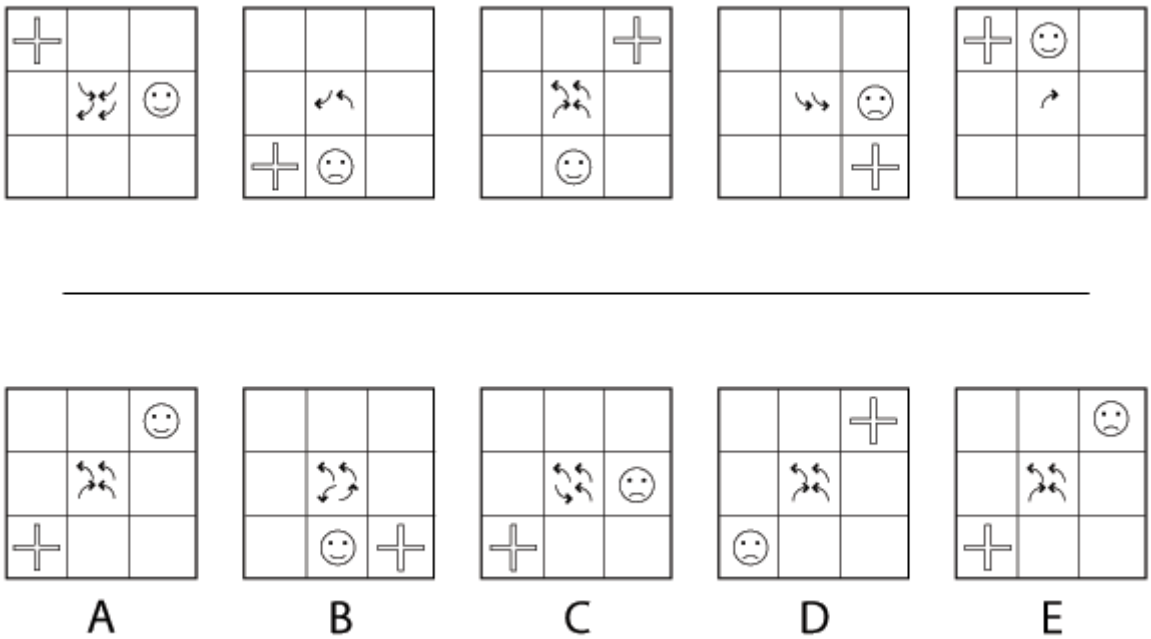
Rule 1: The symbol rotates 45˚ counterclockwise each time.
Rule 2: The star moves one box clockwise each time.
Rule 3: The star alternates between shaded and unshaded.



Q11 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

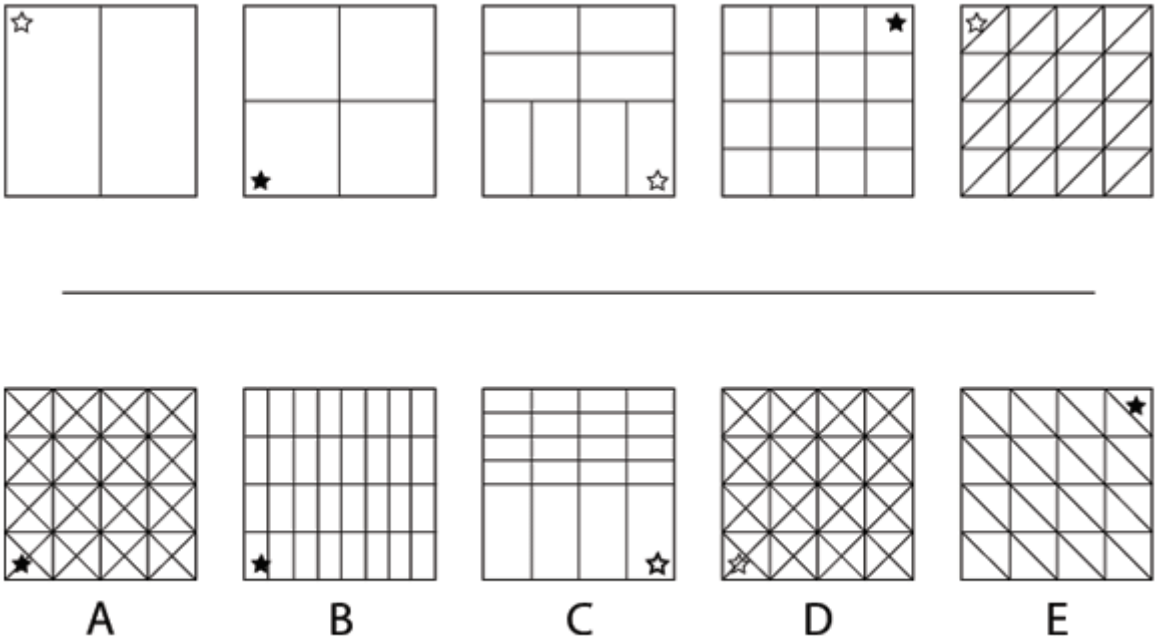
Rule 1: The number of notches in the corner increases by one each time, and the location alternates between top right and bottom left.
Rule 2: The total number of shape edges increases by one each time.
Rule 3: The final shape is the first shape of the next box.



Q12 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

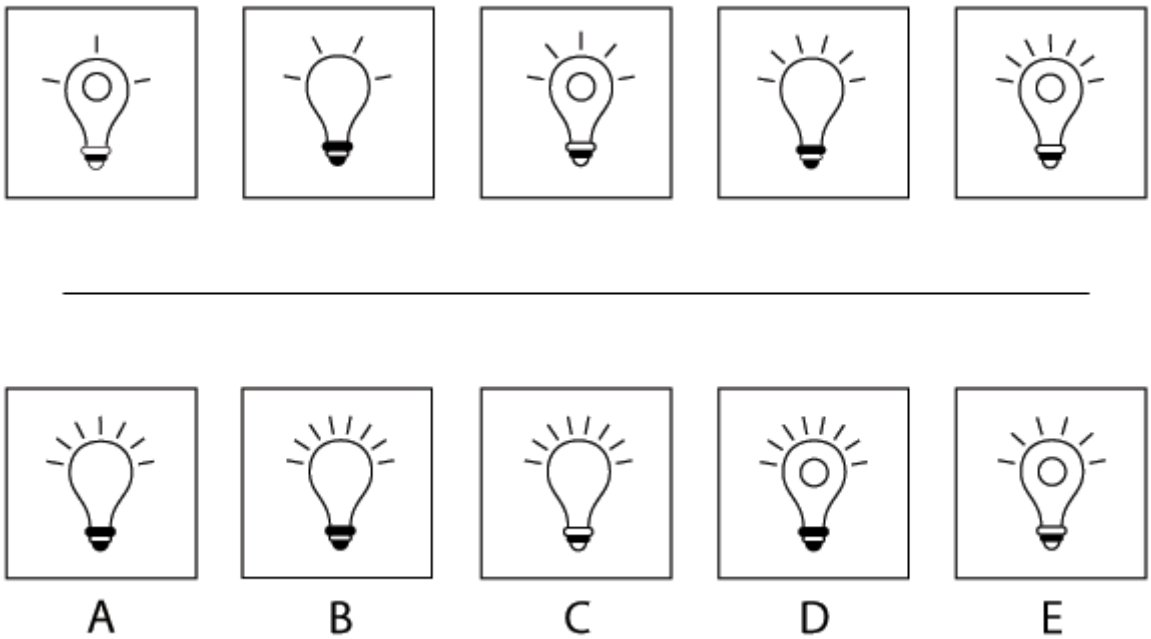
Rule 1: The Cross moves from top left, to bottom left, to top right, to bottom right, then begins again
Rule 2: The face alternates between happy and sad.
Rule 3: The arrows in the centre dictate the movement of the face in the next box (i.e. 3 places clockwise, 1 place counterclockwise and so on).



Q13 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

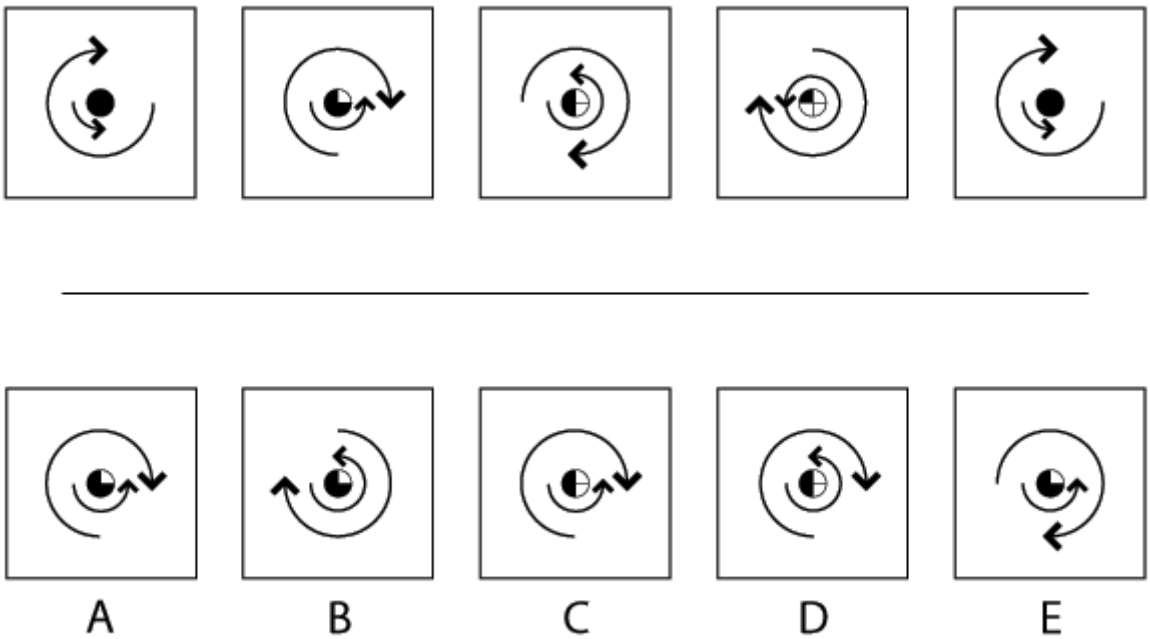
Rule 1: The total number of segments is halved each time.
Rule 2: The star moves counterclockwise to the next corner.
Rule 3: The star alternates between black and white.



Q14 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

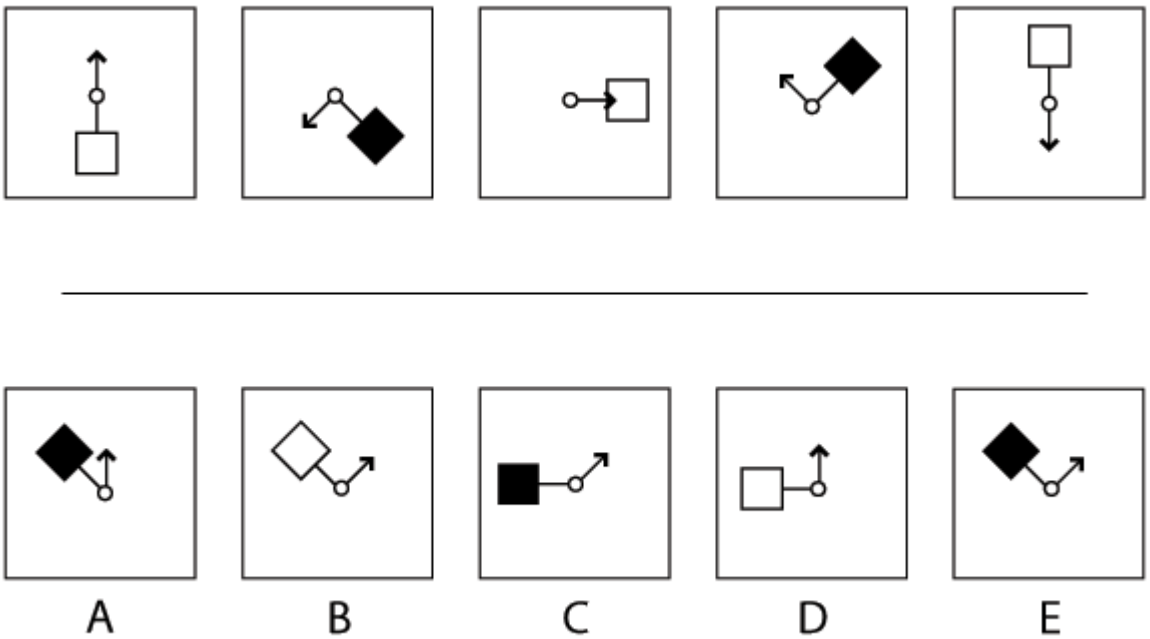
Rule 1: The number of lines emanating from the bulb increases by one each time.
Rule 2: The rings at the base of the bulb alternate between black and white.
Rule 3: The circle in the bulb appears every two boxes.



Q15 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

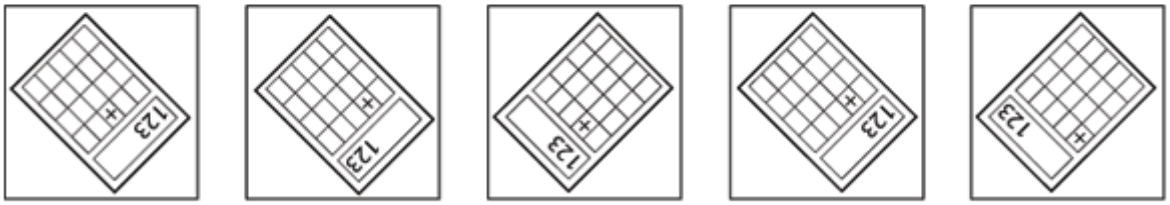
Rule 1: The outer ring rotates 90˚ clockwise each time.
Rule 2: The inner arrow rotates 90˚ counterclockwise in a circle each time, filling in the circle. When the inner circle is complete, the pattern begins again.
Rule 3: The number shaded quarters in the centre circle decreases by one each time. When the number of shaded quarters is equal to zero, this pattern repeats.



Q16 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The box rotates 45˚ counterclockwise around the centre circle.
Rule 2: The box alternates between black and white.
Rule 3: The arrow rotates 135˚ counterclockwise around the centre circle.

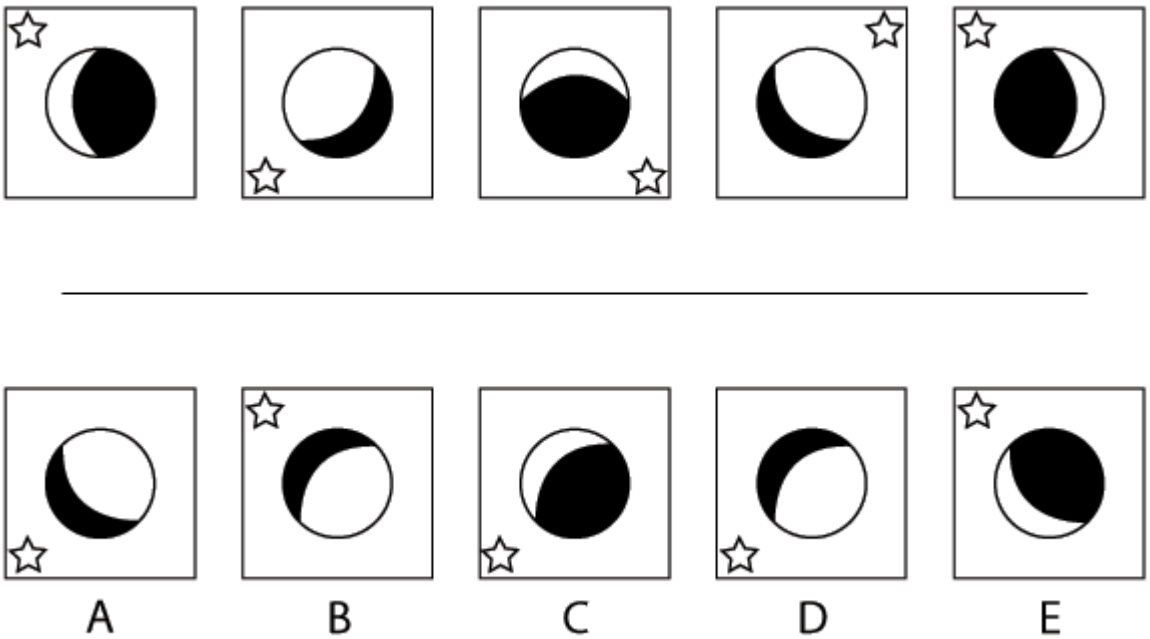


A B C D E

Q17 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

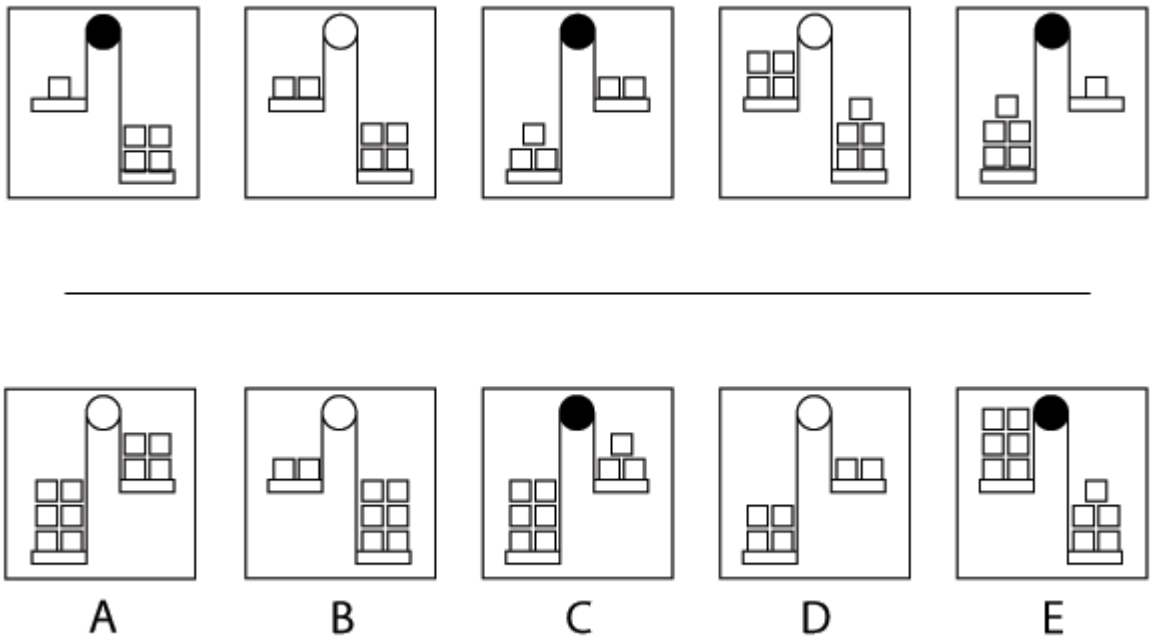
Rule 1: The calculator rotates 45˚ counterclockwise each time.
Rule 2: The numbers alternate between the left and right hand sides of the screen.
Rule 3: The “+” symbol moves clockwise 1 place, then 2 places, then 3 places and so on.



Q18 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

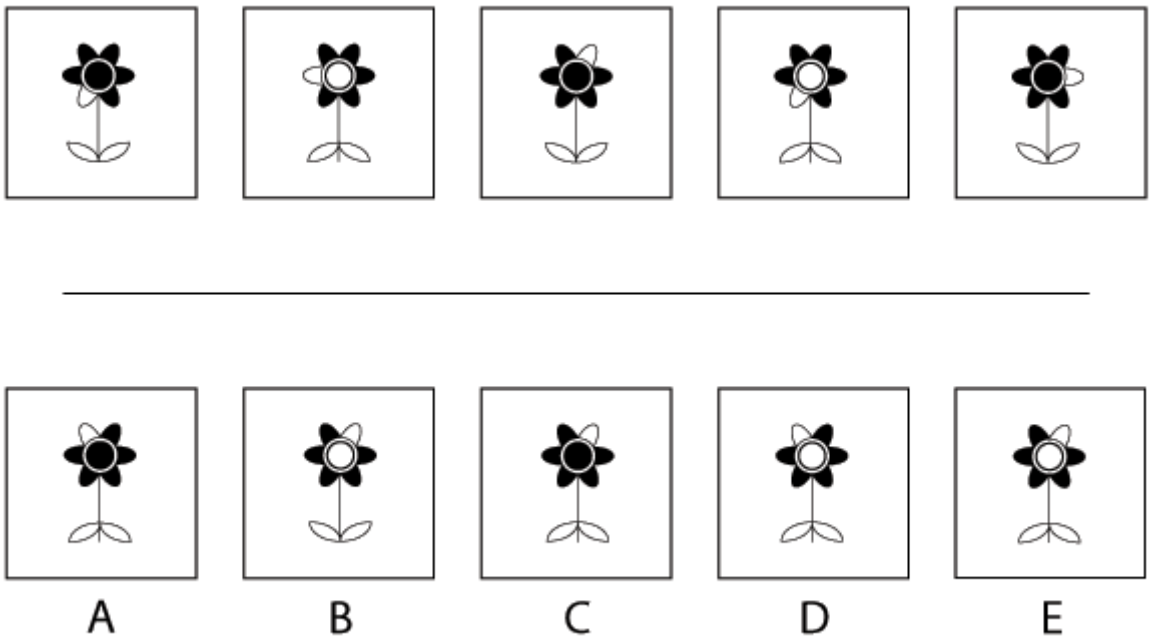
Rule 1: The star moves counterclockwise to the next corner each time.
Rule 2: The symbol in the centre rotates 135° counterclockwise each time.
Rule 3: The shading on the symbol alternates.



Q19 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

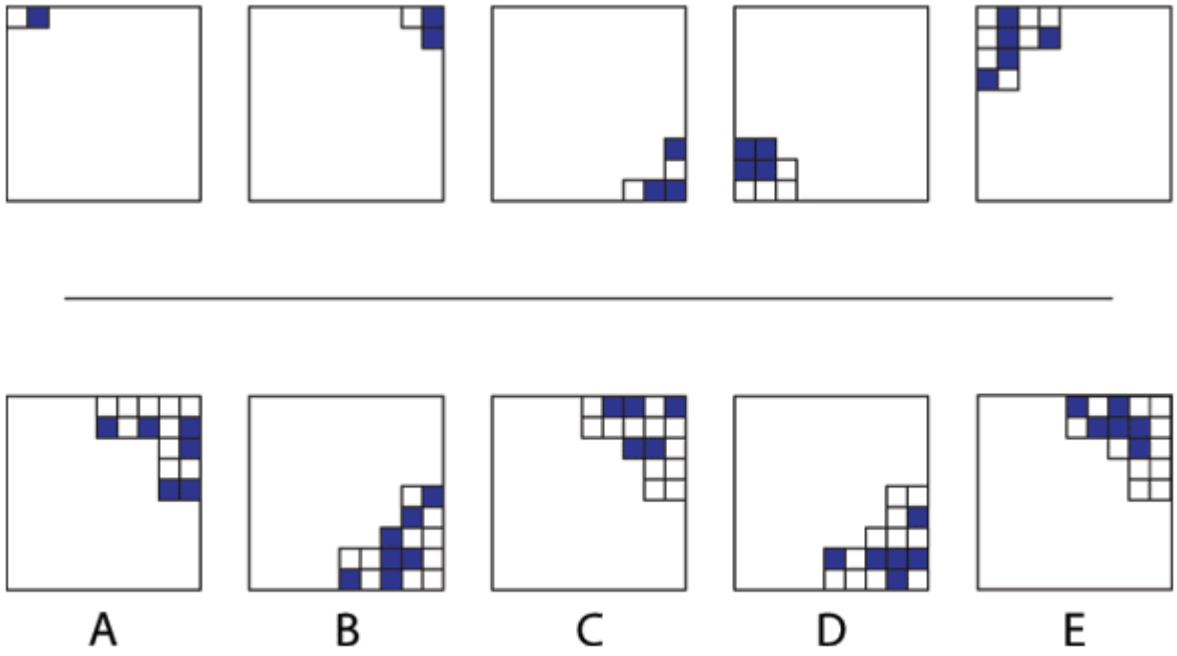
Rule 1: The circle alternates between shaded and unshaded.
Rule 2: The number of squares on the left hand scale increases by one each time.
Rule 3: The scale with the most boxes is always weighed down.



Q20 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

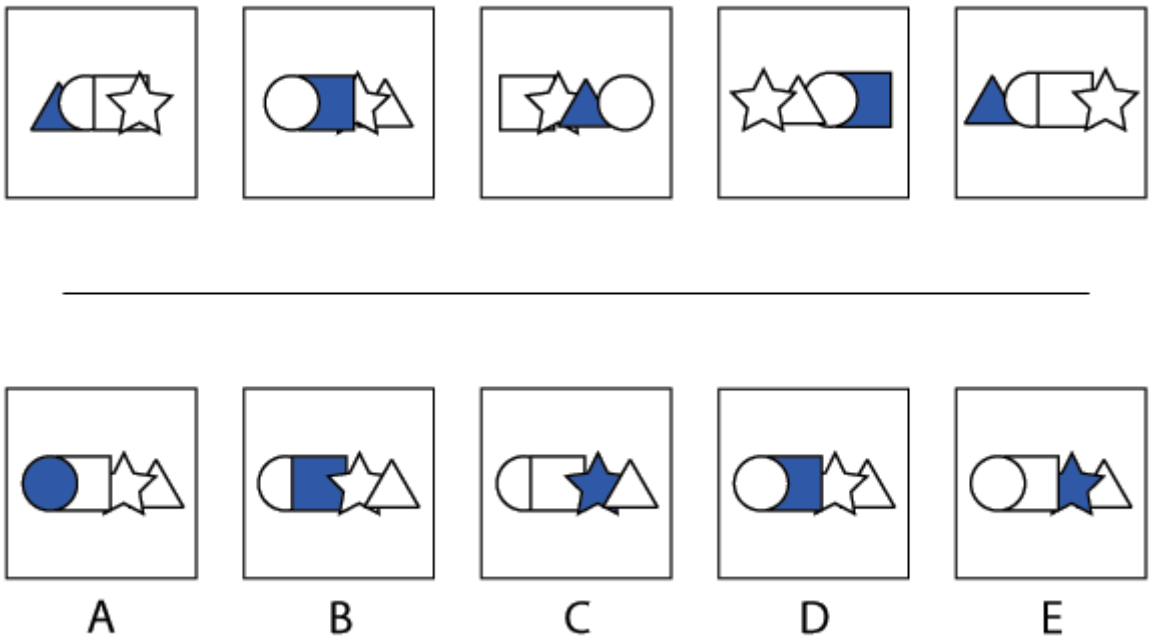
Rule 1: The unshaded petal moves clockwise 1 place, then 2 places, then 3 places and so on.
Rule 2: The leaves at the bottom of the flower alternate between pointing up and down.
Rule 3: The centre of the flower alternates between shaded and unshaded.



Q21 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

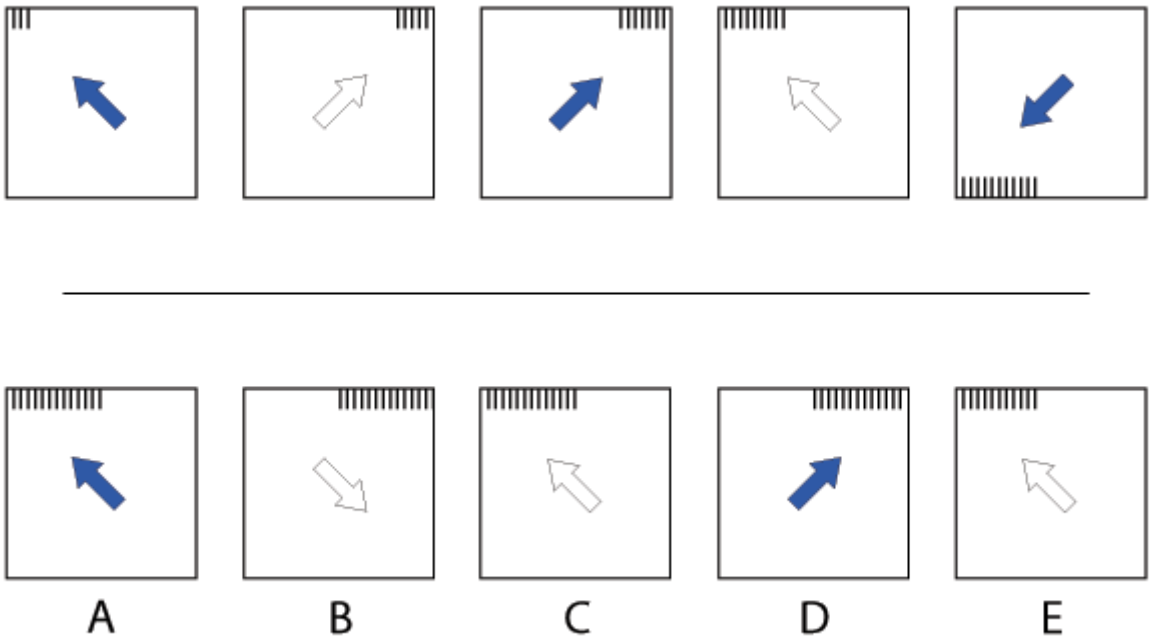
Rule 1: Each time, 1 square is added, then 2 squares, then 3 squares and so on.
Rule 2: The squares moves clockwise to the next corner each time.
Rule 3: Each time 1 square is shaded, then 2 squares, then 3 squares and so on.



Q22 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

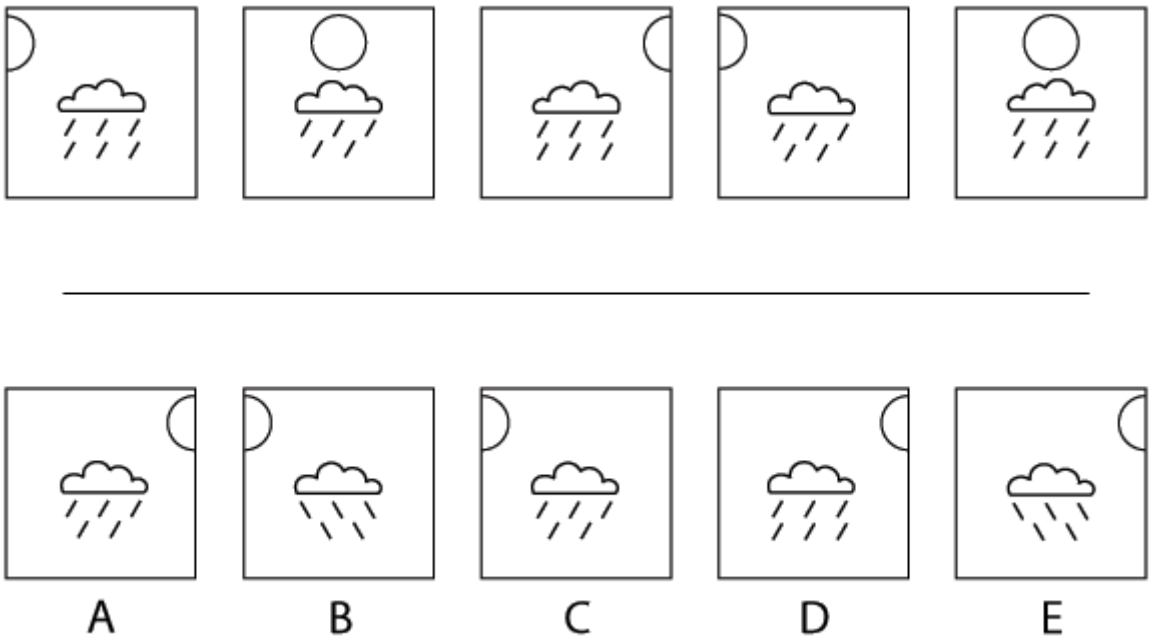
Rule 1: The shapes moves one place to the left each time.
Rule 2: The shapes alternate between moving from background to foreground, and then vice versa.
Rule 3: The shaded shape moves one place to the right each time.



Q23 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

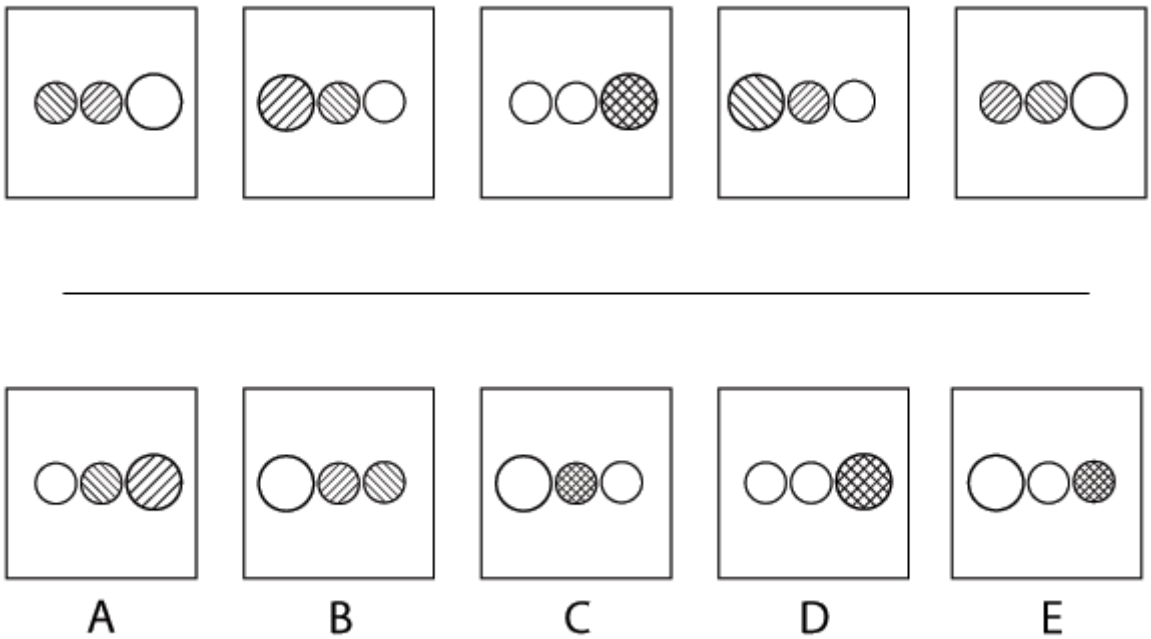
Rule 1: The arrow always points to the notches.
Rule 2: The arrow alternates between shaded and unshaded.
Rule 3: The number of notches increases by 2 each time.



Q24 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

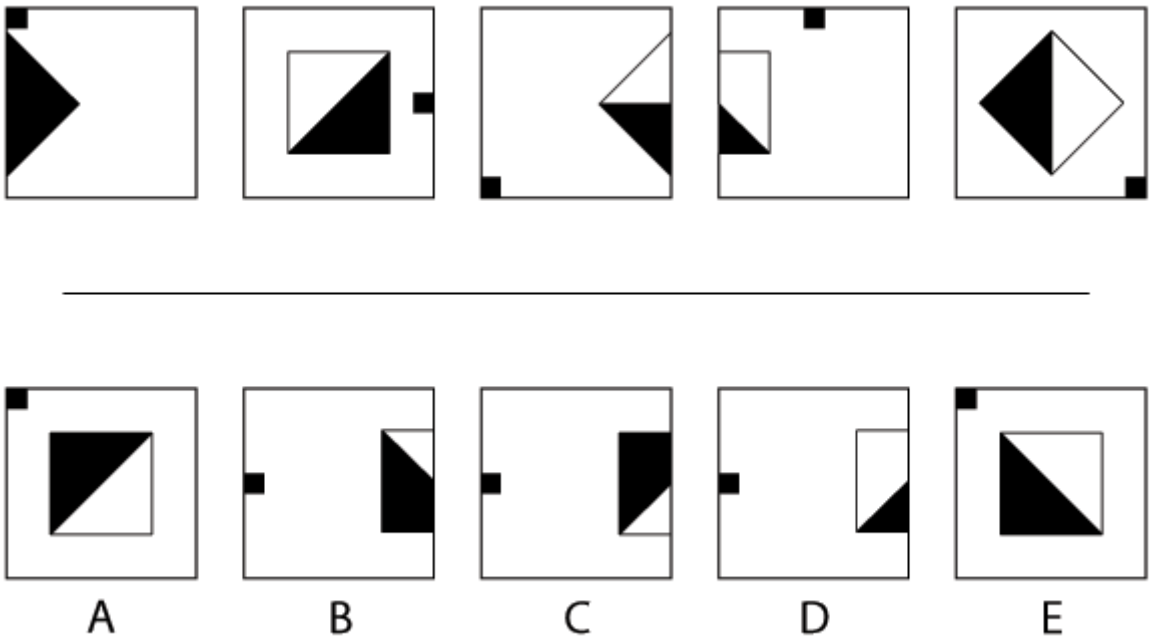
Rule 1: The sun moves from left to right, and then begins again from the left.
Rule 2: The cloud is mirrored in the vertical axis each time.
Rule 3: The number of raindrops alternates between 5 and 6.



Q25 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

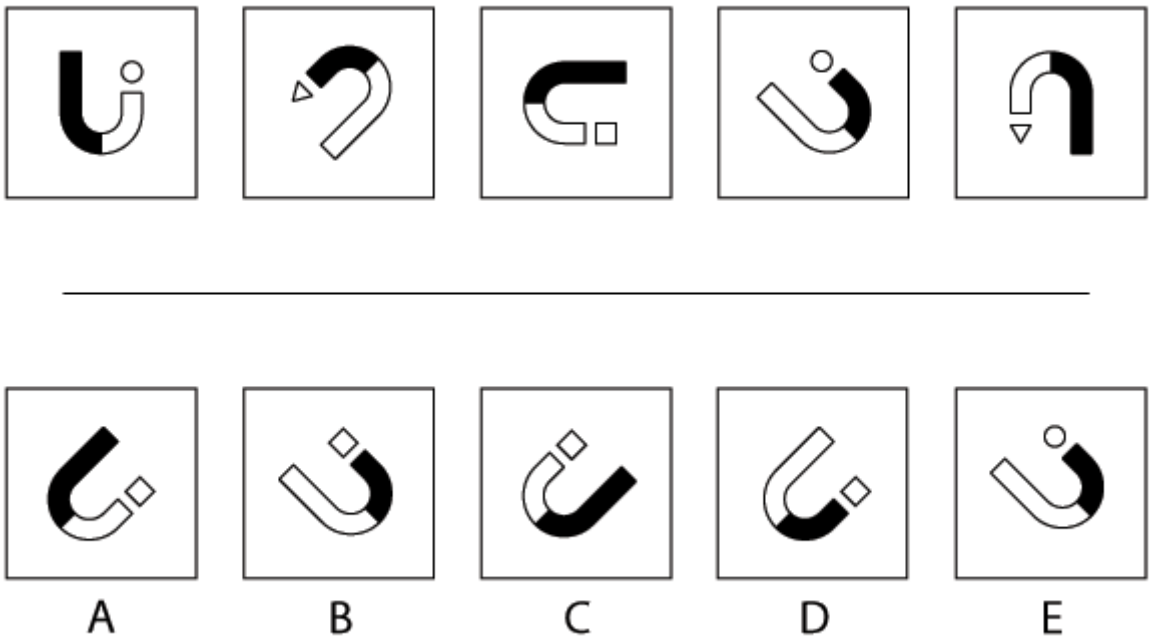
Rule 1: The NW-SE lined circle moves one place to the right each time.
Rule 2: The NE-SW lined circle moves one place to the left each time.
Rule 3: The enlarged circle alternates between the leftmost and rightmost circle.



Q26 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

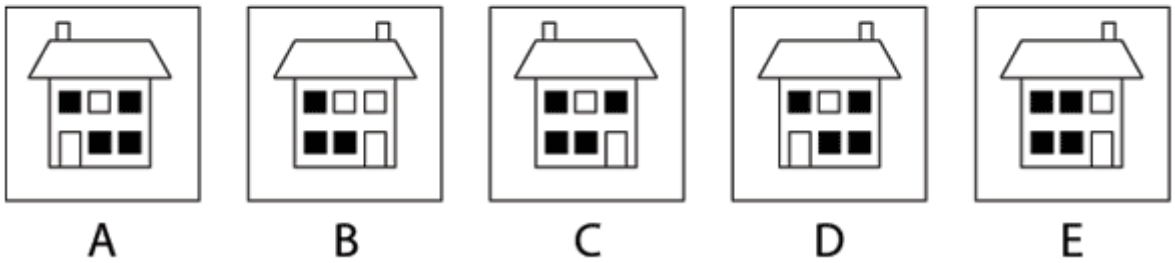
Rule 1: The large square rotates 45° clockwise each time.
Rule 2: The large square moves one place to the right each time. When it reaches the right hand side of the box, the pattern repeats.
Rule 3: The small square moves 3 places clockwise around the box.



Q27 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

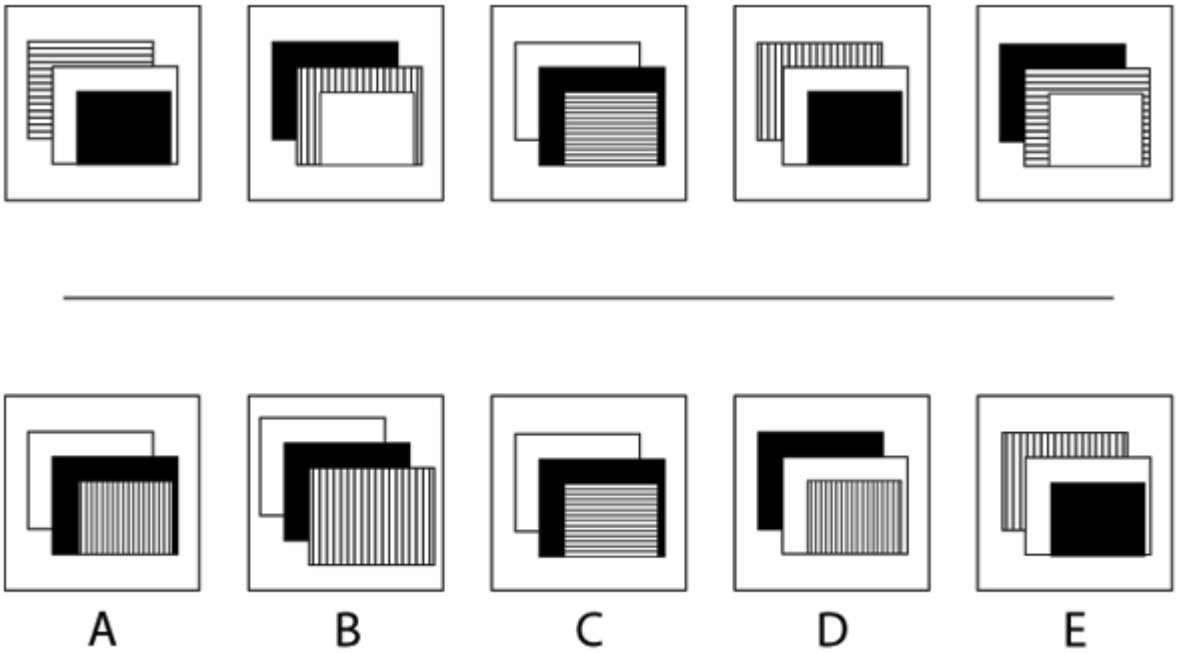
Rule 1: The symbol rotates 135° counterclockwise each time.
Rule 2: The small shape goes from circle to triangle to square, and then repeats.
Rule 3: Both segments of the symbol alternates alternate between shaded and unshaded.



Q28 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

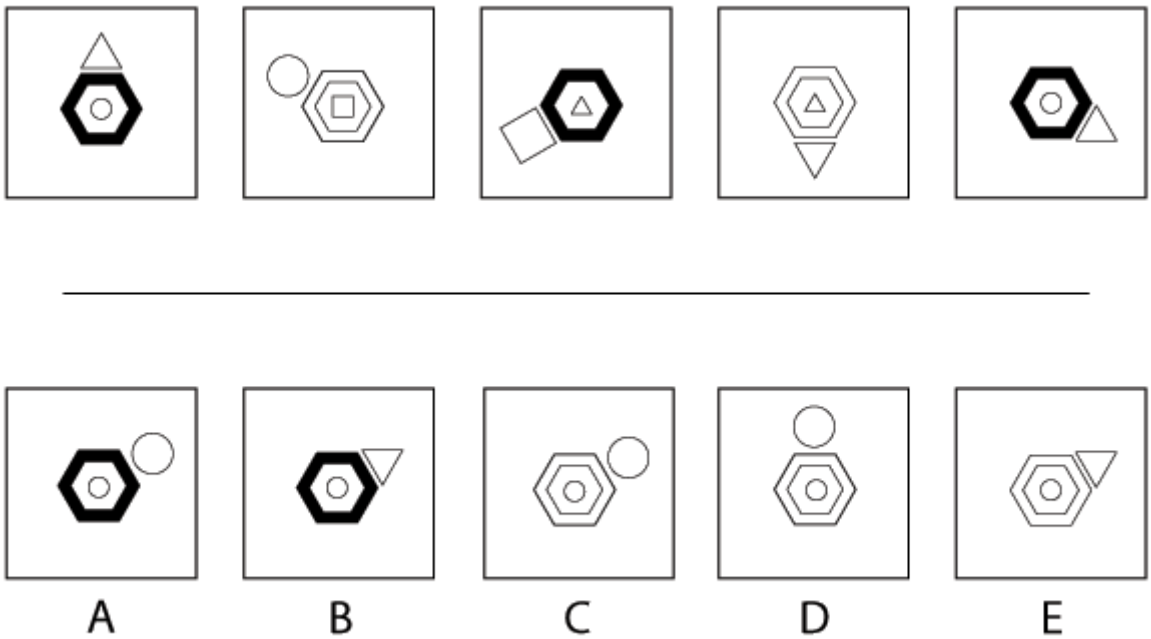
Rule 1: The chimney alternates between the left and right hand side of the roof.
Rule 2: The number of shaded windows alternates between 3 and 4.
Rule 3: The door moves one place to the right each time. When it reaches the end, the pattern repeats.



Q29 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: Each rectangle move one place forward each time, and then begins again from the back.
Rule 2: The foreground rectangle is always smaller.
Rule 3: The lines on the lined rectangle alternate between horizontal and vertical.



Q30 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The hexagon alternates between shaded and unshaded.
Rule 2: The large outer shape moves one place counterclockwise around the hexagon each time.
Rule 3: The small shape inside the hexagon indicated what the next large outer shape will be.

-- End of Test --

ABSTRACT REASONING TEST 3

Instructions

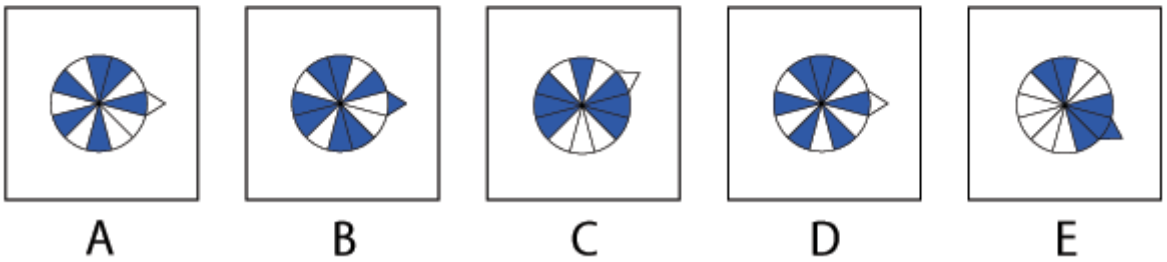
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

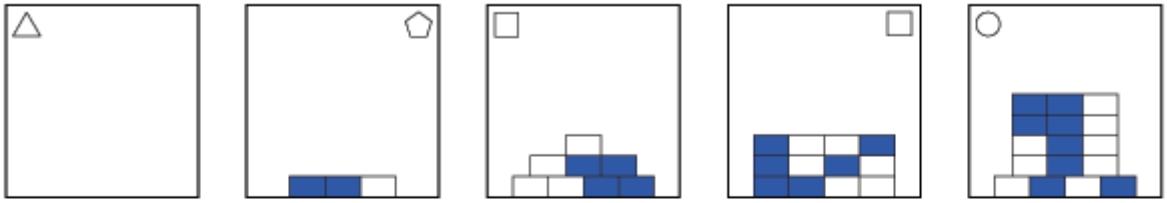
Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

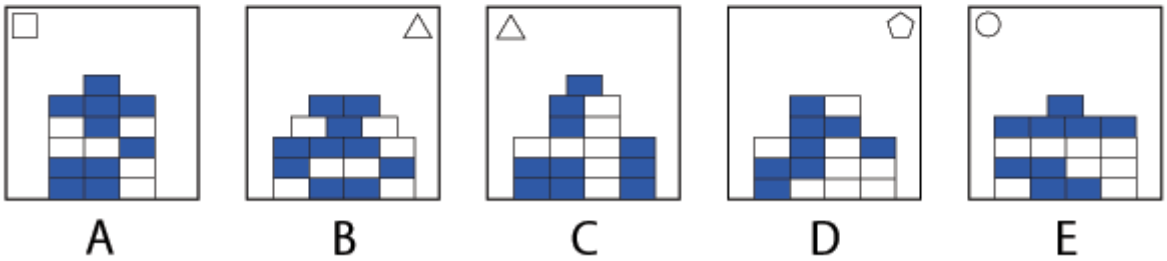


Q1 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The triangle moves clockwise 1 place, then 2 places, then 3 place and so on, around the circle.
Rule 2: The triangle alternates between shaded and unshaded.
Rule 3: The number of shaded segments in the circle increases by one each time.

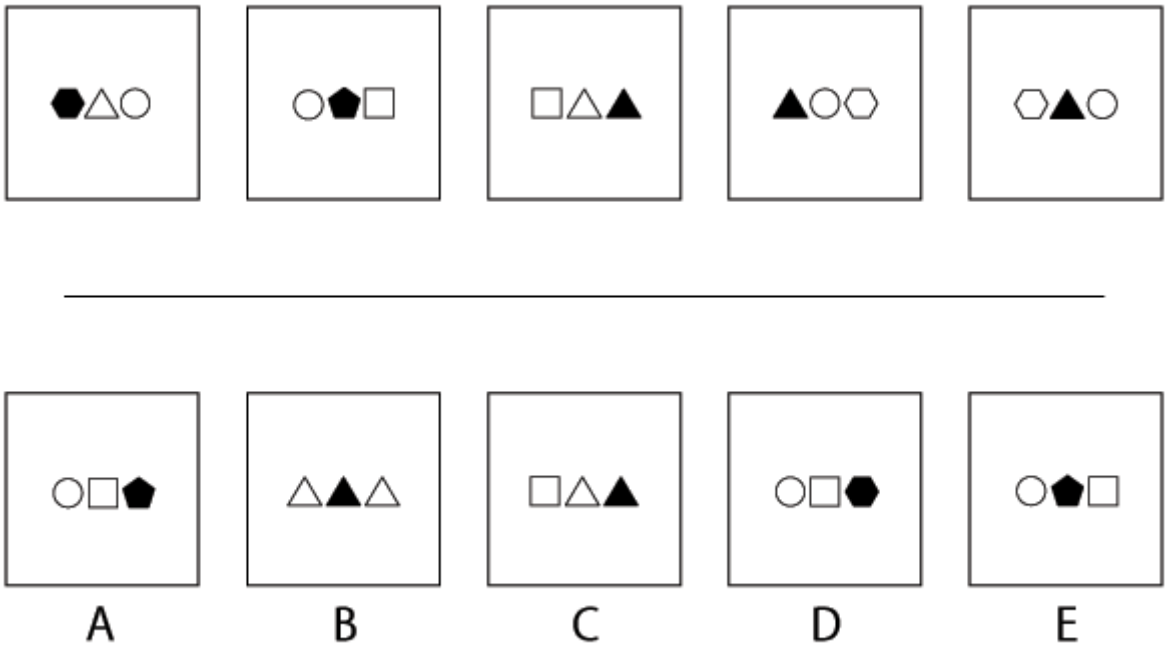




Q2 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

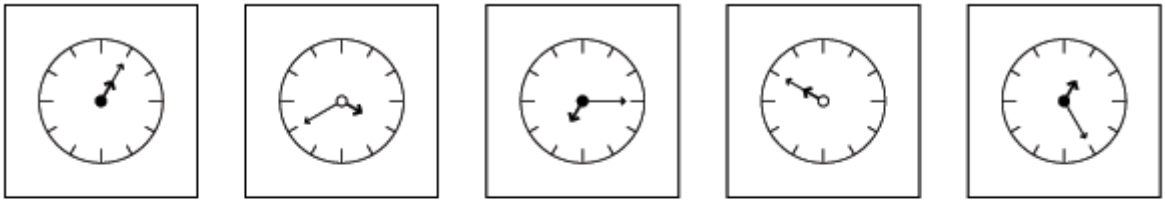
Rule 1: The shape at the top alternates between the top left and top right hand corners.
Rule 2: The number of edges of the shape indicated how many bricks should be added to the next box.
Rule 3: The number of shaded bricks per box increases by two each time.



Q3 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of edges in each box is equal to ten.
Rule 2: The last shape in each box is the first shape of the next box.
Rule 3: The shading moves one place to the right each time and then begins again from the left.

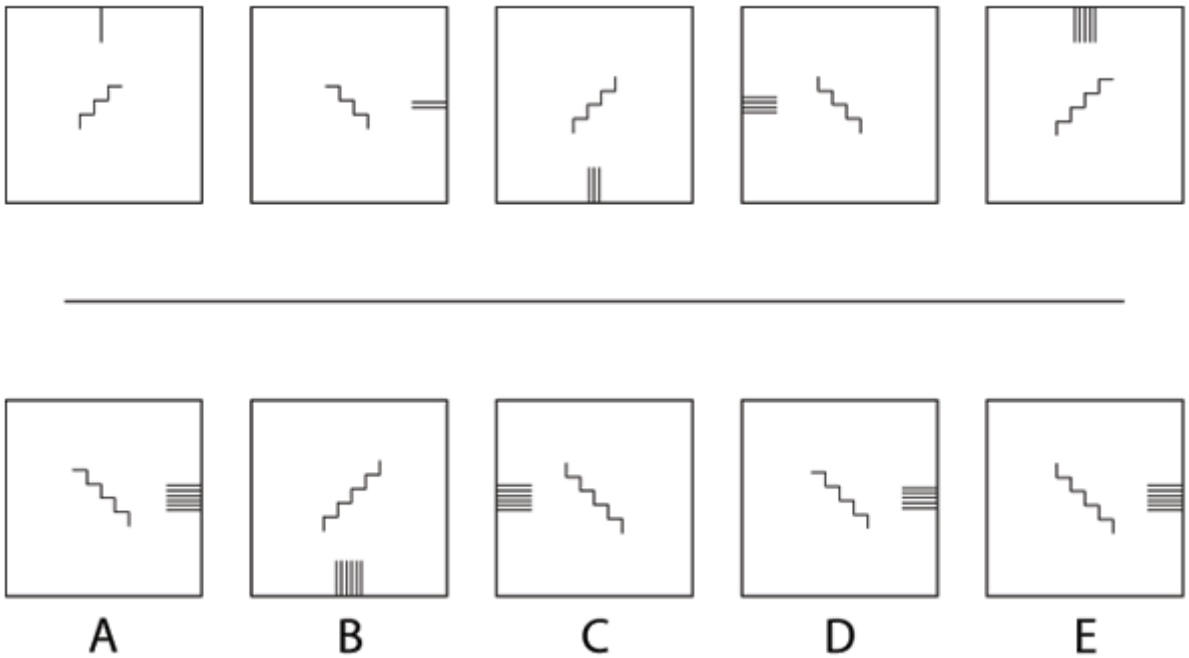


A B C D E

Q4 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

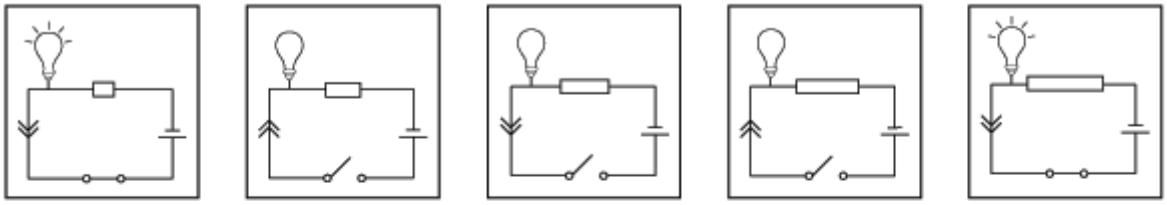
Rule 1: The minutes (long) hand rotates 5 hours counterclockwise each time.
Rule 2: The hour (short) hand rotates 3 places clockwise each time.
Rule 3: The circle at the centre of the clock alternates between black and white.

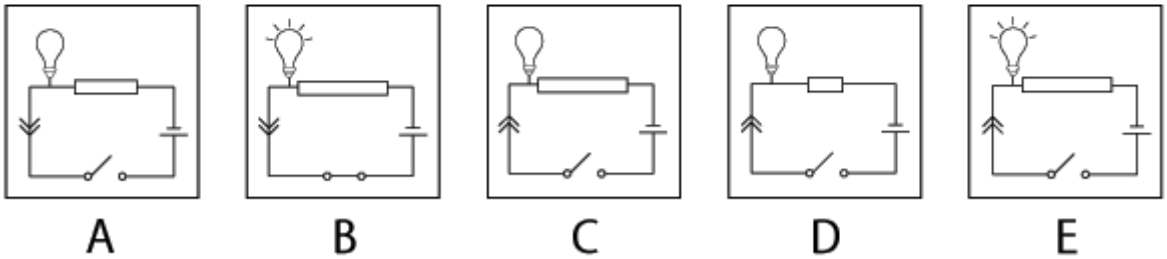


Q5 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The notches move 1 place clockwise around the edge of the box and each time increases by one.
Rule 2: The centre symbol is mirrored horizontally each time.
Rule 3: The number of lines in the centre symbol increases by one every two boxes.

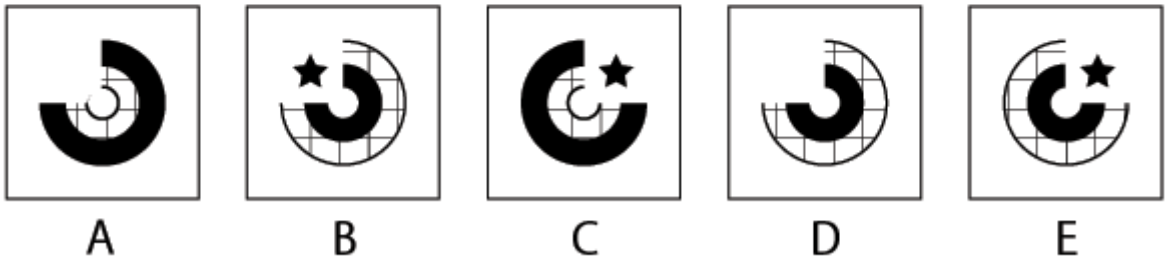




Q6 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

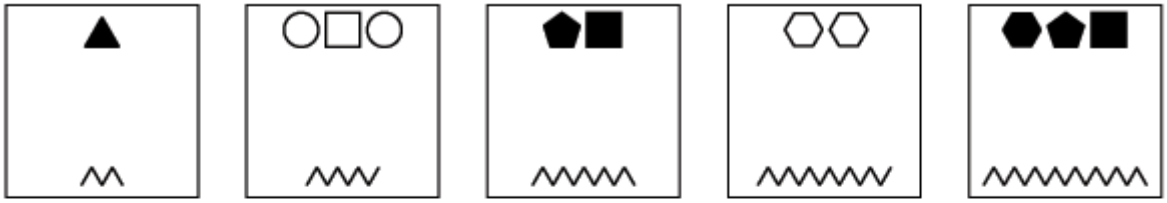
Rule 1: When the circuit is complete (the bottom connection is closed) the bulb lights up. When
the circuit is broken (bottom connection is open) the bulb does not light up.
Rule 2: The arrows on the left of the circuit alternate between pointing up and down.
Rule 3: The box at the top of the circuit increases in size each time.

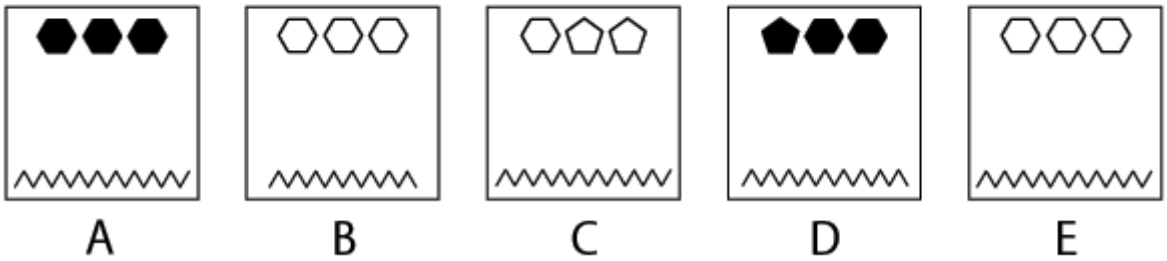


Q7 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The rings alternate between cross hatched and black
Rule 2: The missing quarter moves one place counterclockwise each time.
Rule 3: Every second box has a star in the missing quarter.

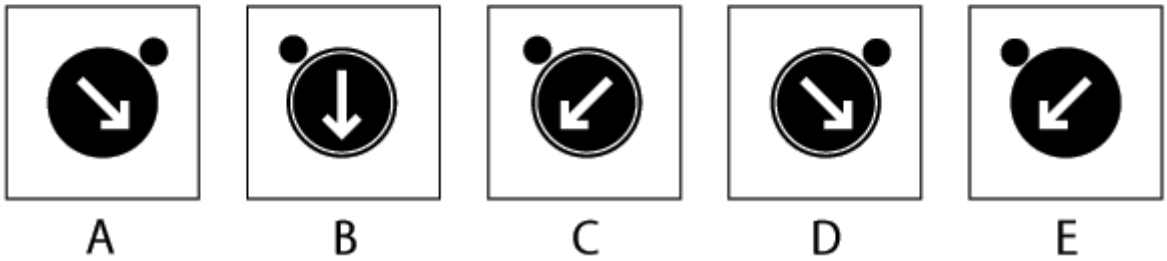




Q8 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

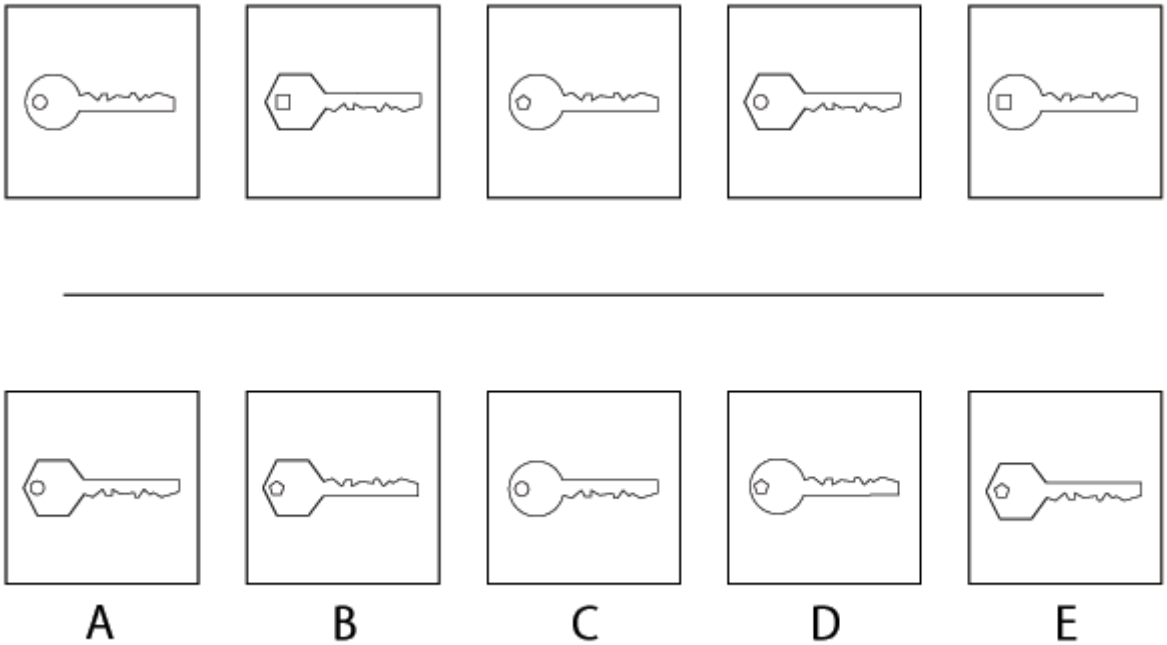
Rule 1: The number of diagonal lines at the bottom of the box increases by three each time.
Rule 2: The total number of edges on the shapes is equal to one less than the total number of lines.
Rule 3: The shapes alternate between shaded and unshaded.



Q9 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

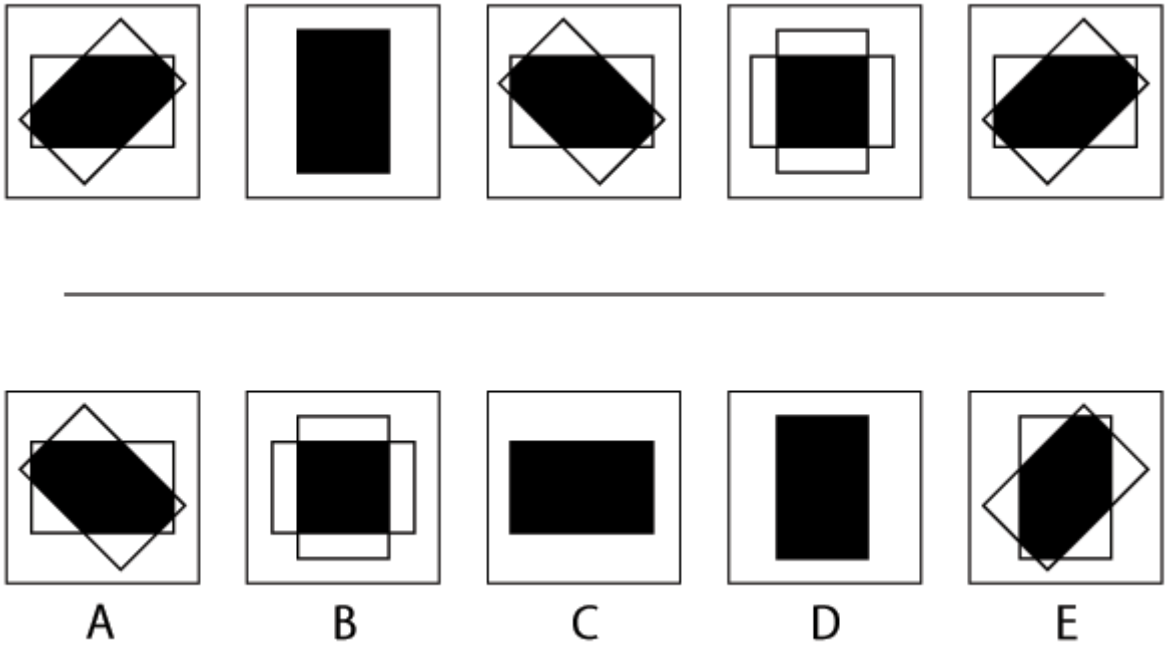
Rule 1: The small black circle rotates 90˚ counterclockwise around the large circle each time.
Rule 2: The arrow rotates 135˚ counterclockwise each time.
Rule 3: The large circle alternates between having a white trim and no trim.



Q10 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

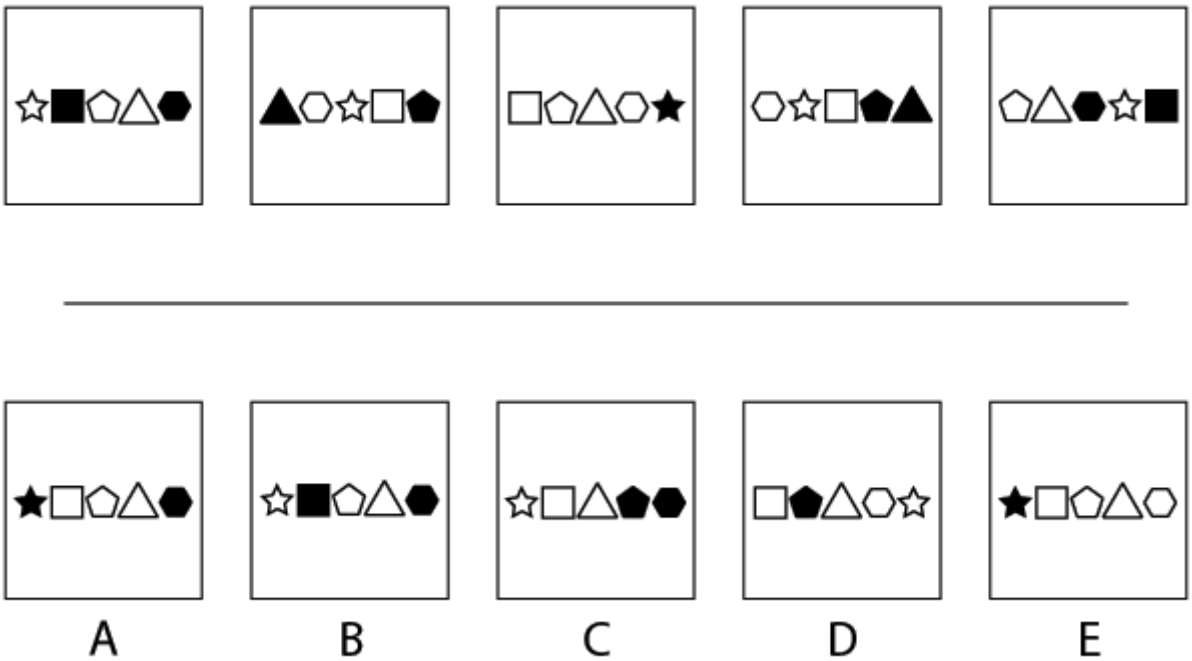
Rule 1: The key base alternates between circular and hexagonal.
Rule 2: The hole in the key is circular, square then hexagonal. The pattern then begins again.
Rule 3: The key flips horizontally each time.



Q11 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

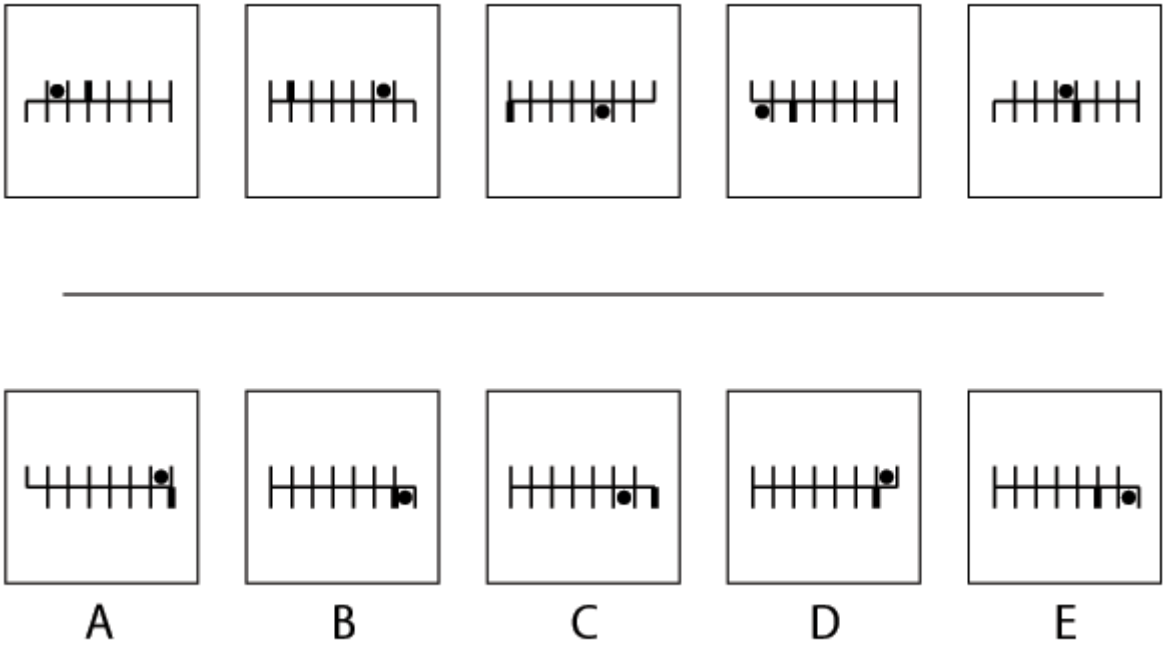
Rule 1: One box rotates 45˚ counterclockwise each time.
Rule 2: The other box rotates 90˚ each time.
Rule 3: When both boxes overlap, the overlapping area is shaded.



Q12 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

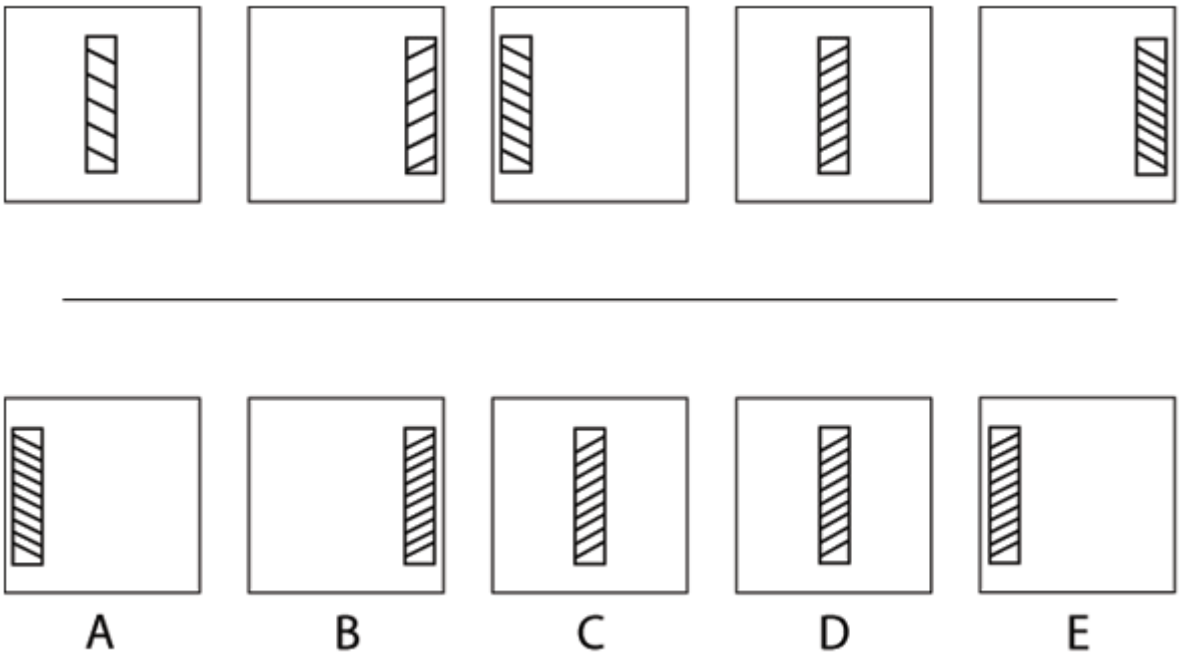
Rule 1: Each shape moves two places to the right each time. When they reach the right end of the line, they begin again from the left hand side.
Rule 2: The final shape in each sequence is always shaded.
Rule 3: The shading moves one place to the left each time.



Q13 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

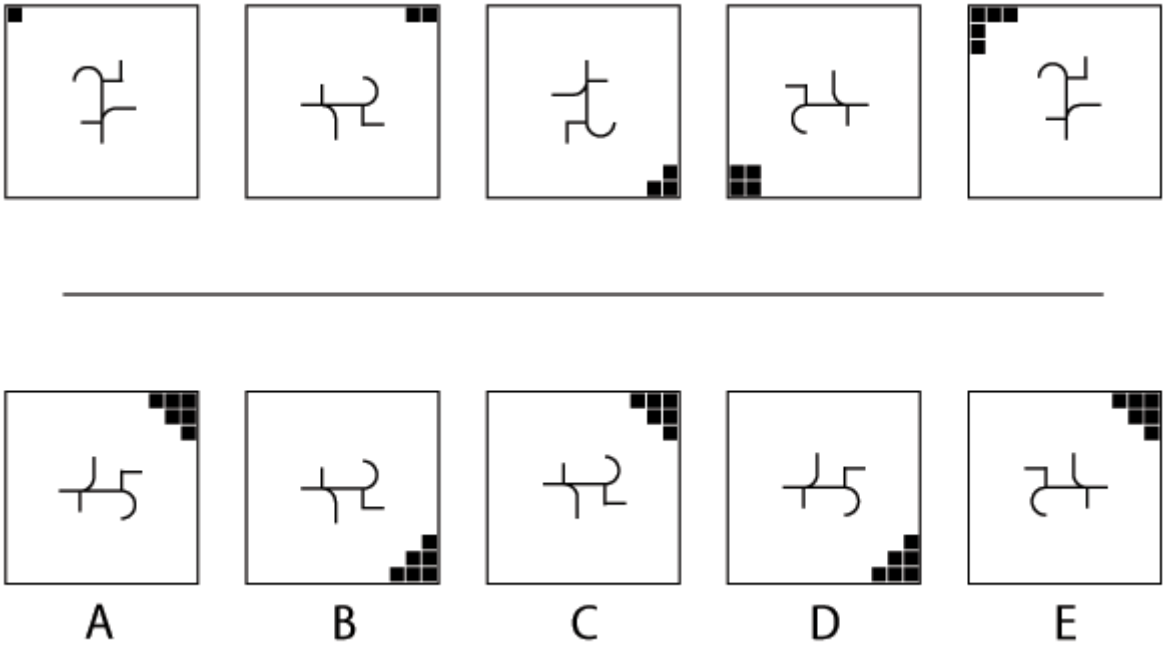
Rule 1: The black circle moves 4 places clockwise each time.
Rule 2: The missing line moves one corner clockwise each time.
Rule 3: The thick line moves two places counterclockwise each time.



Q14 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

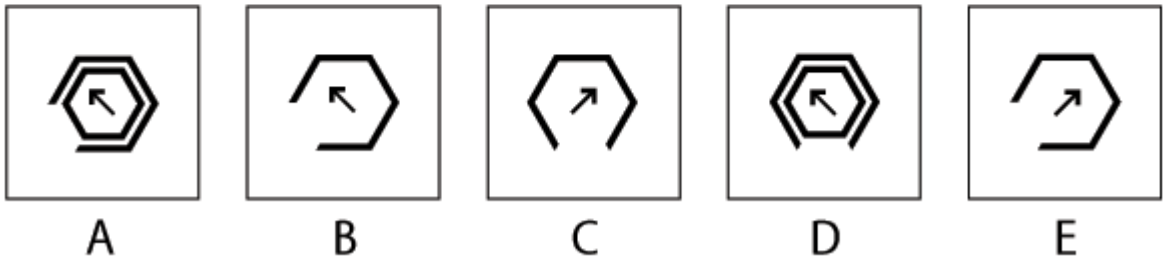
Rule 1: The symbol moves from left to right. When it reaches the right of the box, it then begins again from the left.
Rule 2: The number of diagonal lines in the rectangle increases by one each time.
Rule 3: The orientation of the diagonal lines alternates each time.



Q15 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

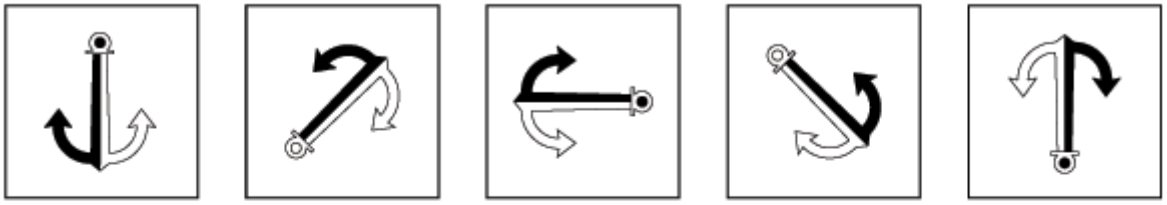
Rule 1: The symbol rotates 90˚ clockwise each time.
Rule 2: The black boxes move clockwise to the next corner each time.
Rule 3: The number of black boxes increases by one each time.

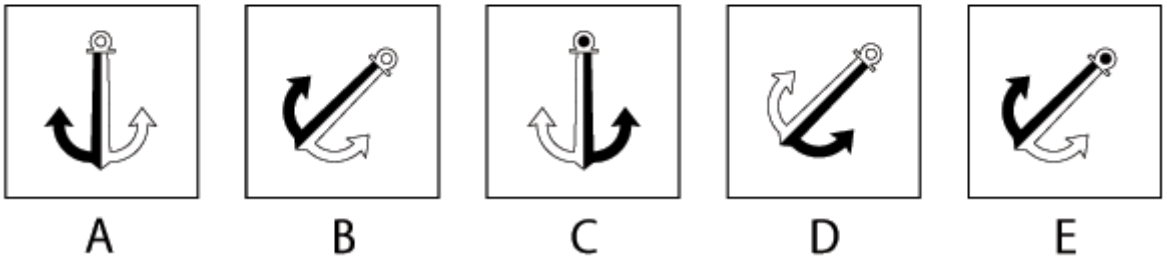


Q16 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow rotates 45˚ counterclockwise each time.
Rule 2: The missing segment on the outer hexagon moves one place counterclockwise, then two place, then three and so on.
Rule 3: The inner hexagon alternates between black and white.

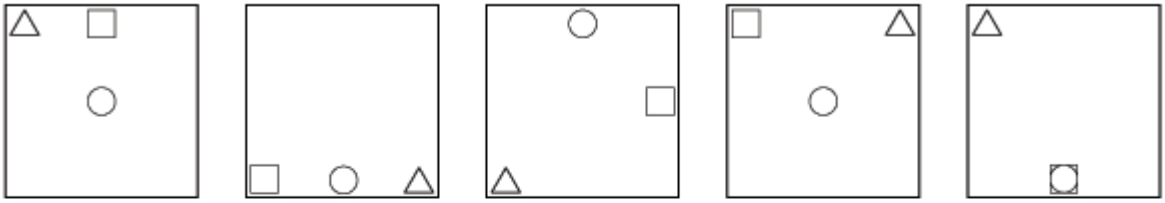


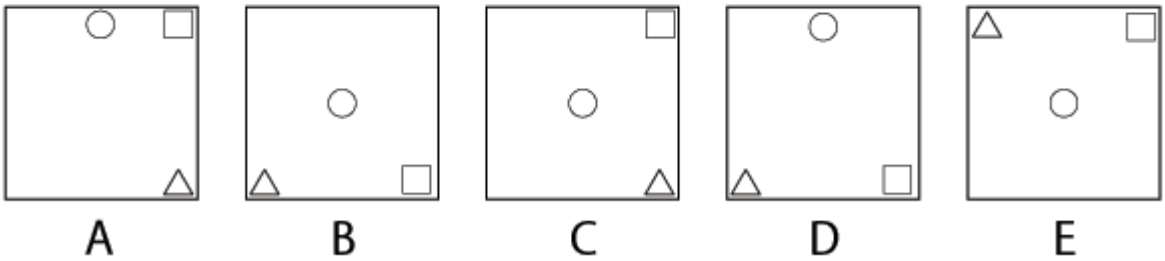


Q17 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The anchor rotates 135˚ counterclockwise each time.
Rule 2: The two main shaded halves of the anchor alternate between black and white.
Rule 3: The circle at the top of the anchor alternates between black and white.

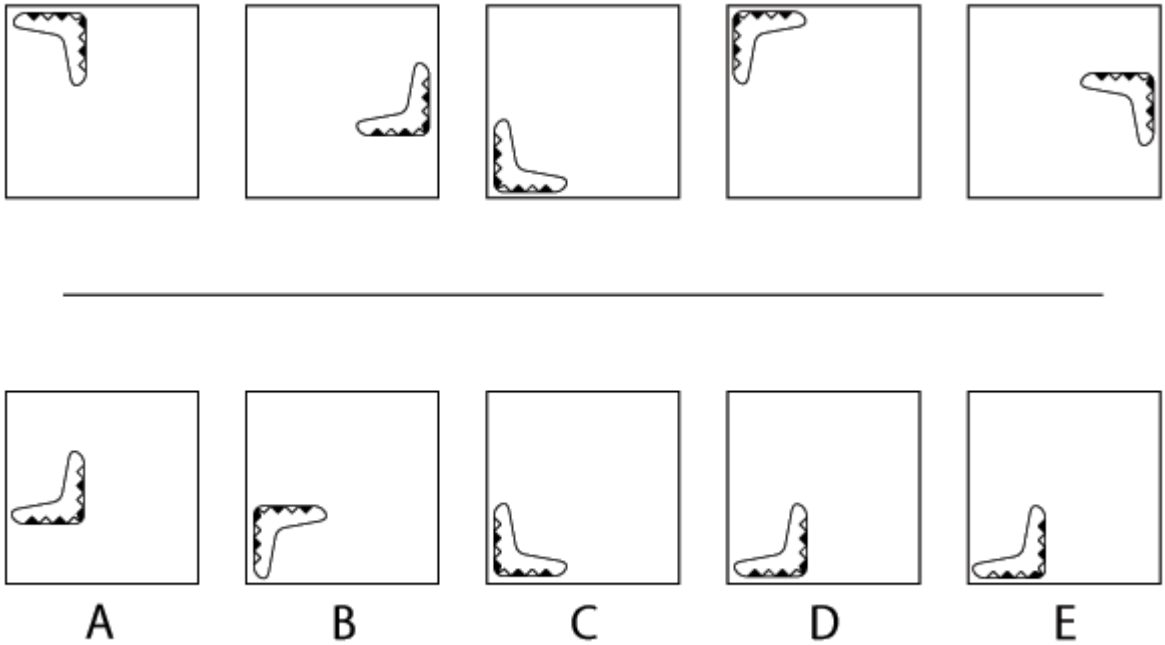




Q18 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

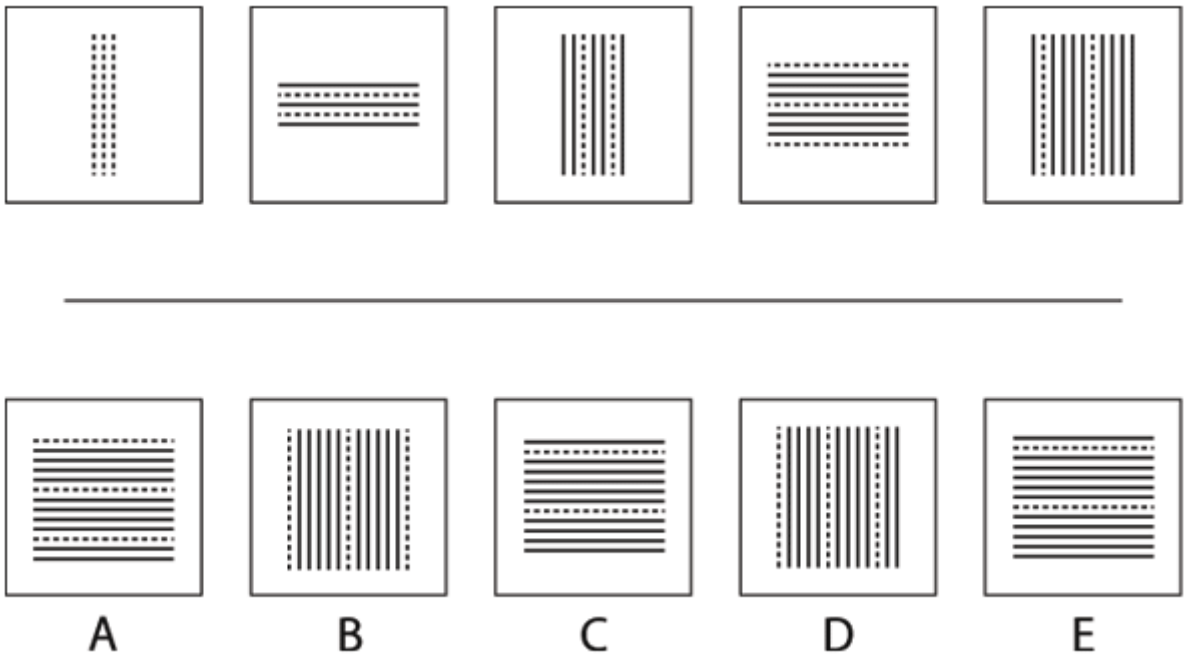
Rule 1: The triangle moves from top left, to bottom right, to bottom left, to top right and then begins again.
Rule 2: The square moves 5 places clockwise around the edge of the box(including centre and corner positions).
Rule 3: The circle moves down one place each time, beginning again at the top of the box.



Q19 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

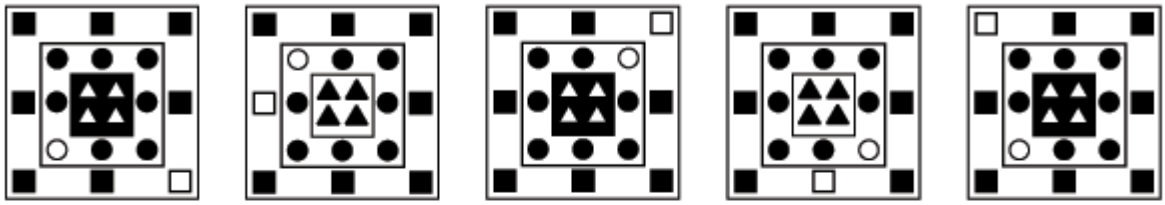
Rule 1: The boomerang moves from top left, to middle right, to bottom left, then begins again.
Rule 2: The boomerang rotates 90˚ clockwise each time.
Rule 3: The triangles on the boomerang alternate between black and white.

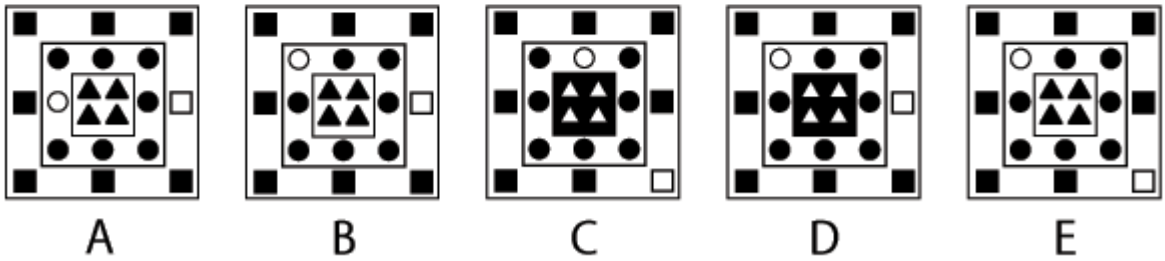


Q20 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The lines' orientation alternates between horizontal and vertical.
Rule 2: The total number of lines increases by two each time.
Rule 3: Every line is dashed, then every second line is dashed, then every third line is dashed and so on.

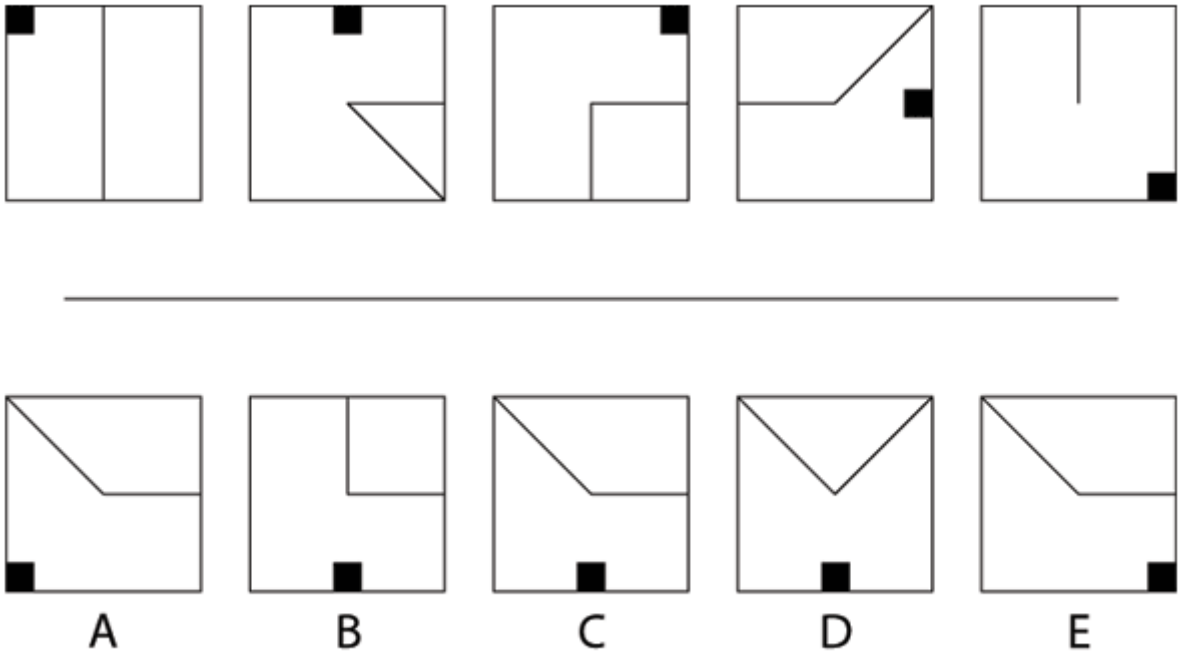




Q21 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

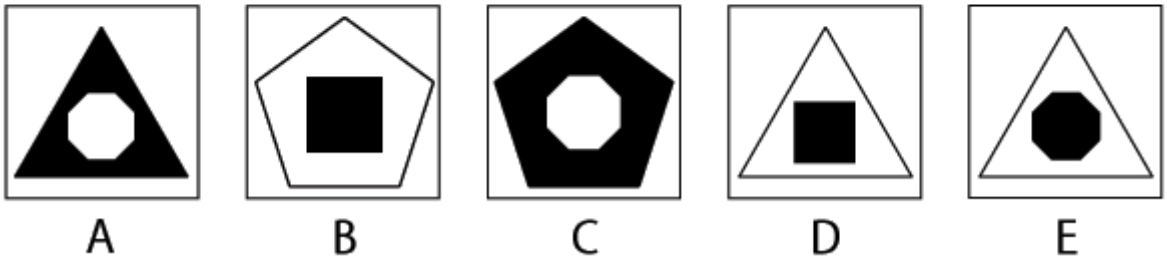
Rule 1: The central square with the triangles alternates between black and white shading.
Rule 2: The unshaded circle moves two places clockwise each time.
Rule 3: The unshaded square moves three places clockwise each time.



Q22 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

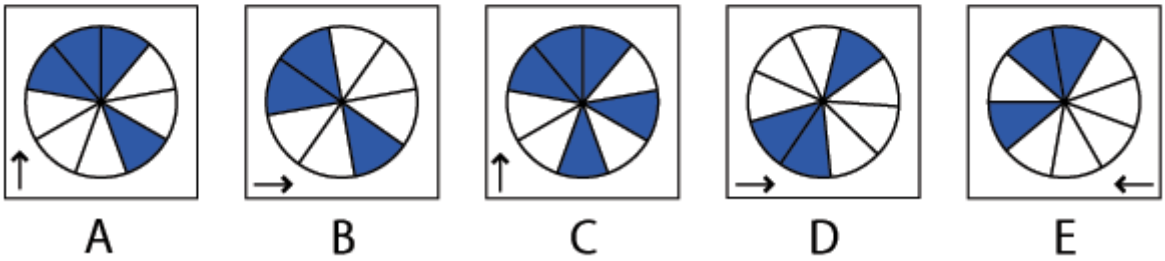
Rule 1: One line rotates rotates 90˚ clockwise each time.
Rule 2: The other line rotates 45˚ counterclockwise each time.
Rule 3: The black square moves one place clockwise each time.



Q23 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

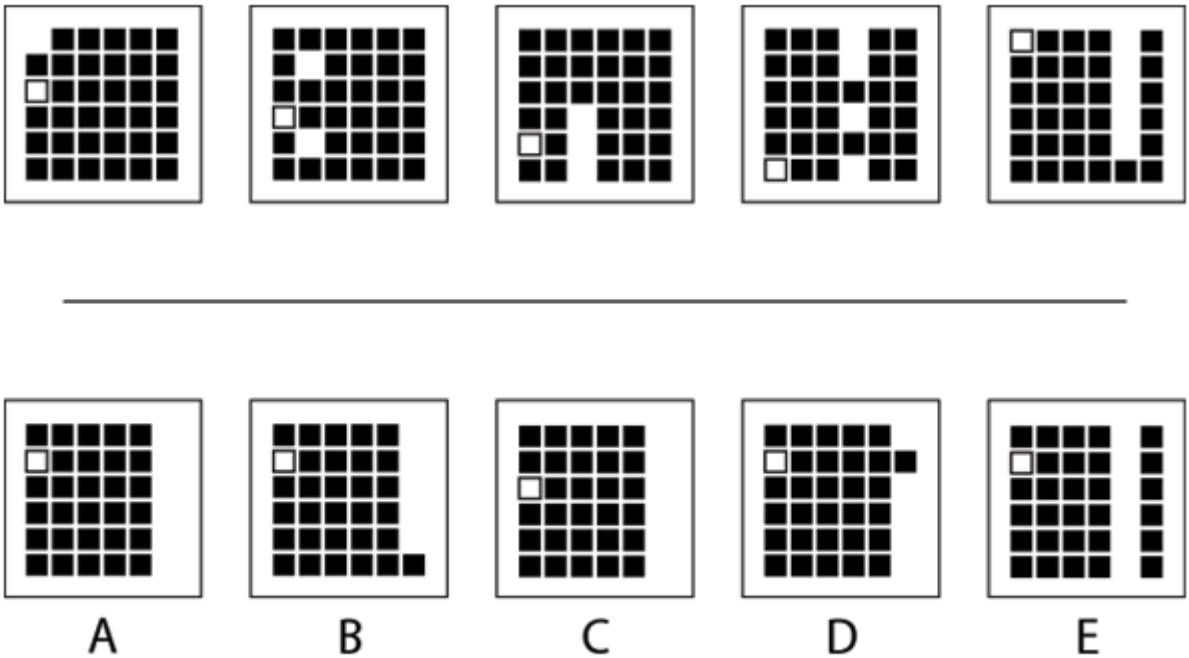
Rule 1: The number of edges on the outer shape decreases by one each time.
Rule 2: The number of edges on the inner shape increases by one each time.
Rule 3: The shapes alternate between black and white.



Q24 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

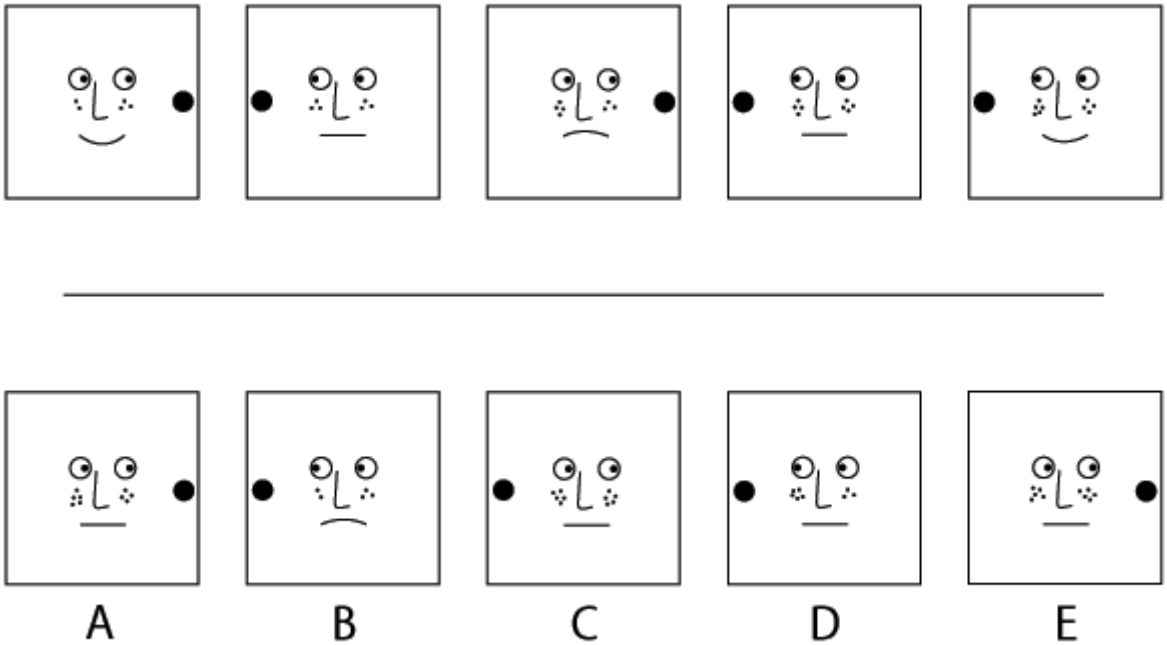
Rule 1: The number of segments in the circle increases by one each time.
Rule 2: The arrow points to where the next arrow will be.
Rule 3: There are always 3 segments shaded.



Q25 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

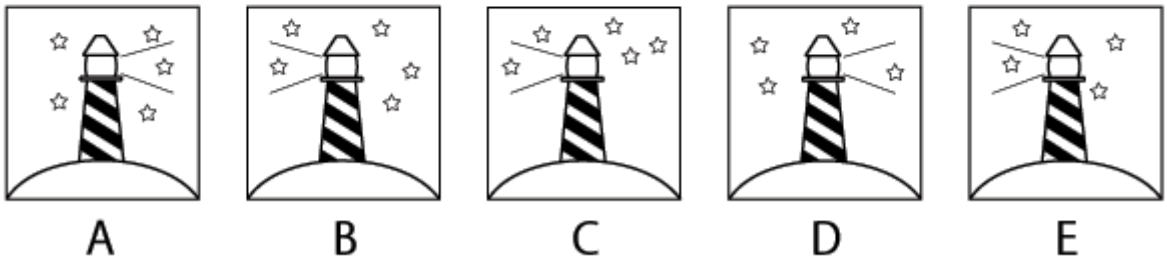
Rule 1: The white square moves down one place each time. When it reaches the bottom, it begins again from the top.
Rule 2: The first box is missing 1 square, the second box is missing 2 sqaures, the third box is missing 3 squares and so on.
Rule 3: The column with the missing squares moves one place to the right each time.



Q26 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

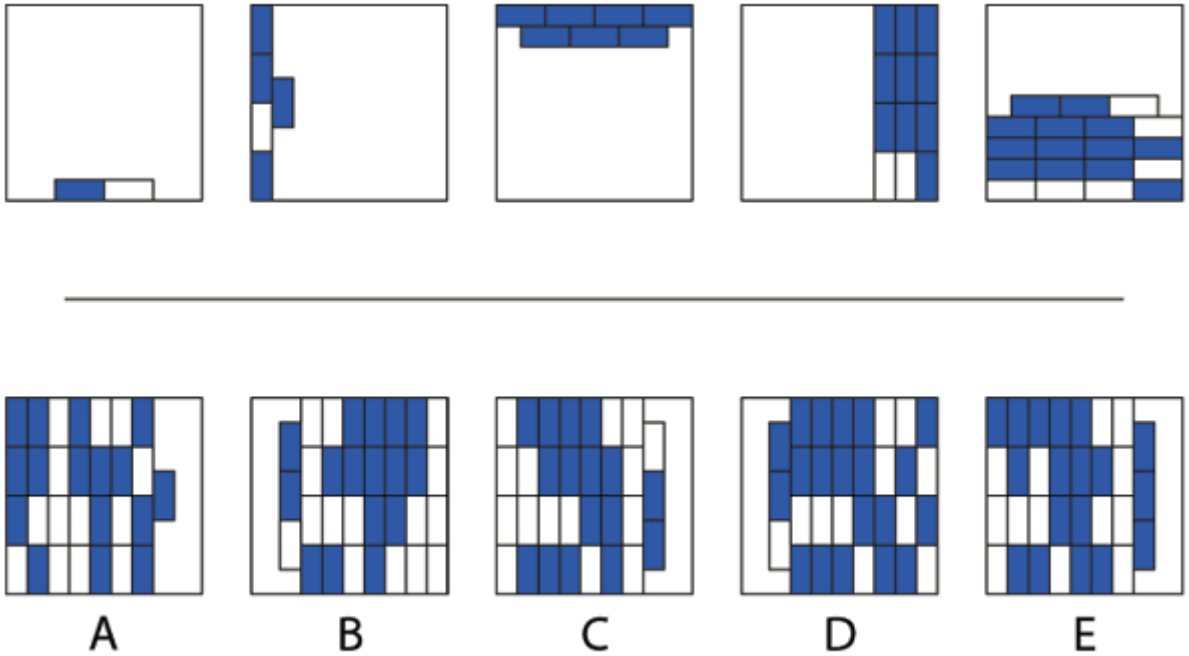
Rule 1: The face goes from happy, to straight, to sad, to straight then happy and begins again.
Rule 2: The total number of freckles increases by one each time.
Rule 3: The eyes follow the black circle.



Q27 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

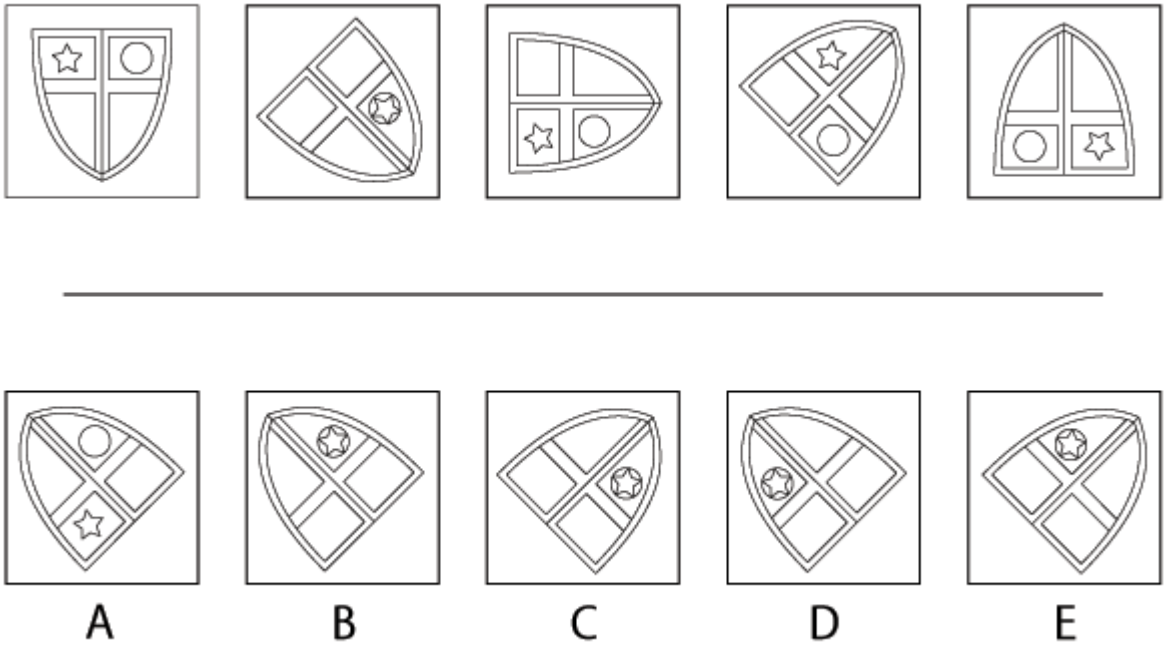
Rule 1: The stripes on the lighthouse alternate between black and white.
Rule 2: The direction of the light coming from the lighthouse alternates between left and right.
Rule 3: The total number of stars in each box alternates between four and five.



Q28 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

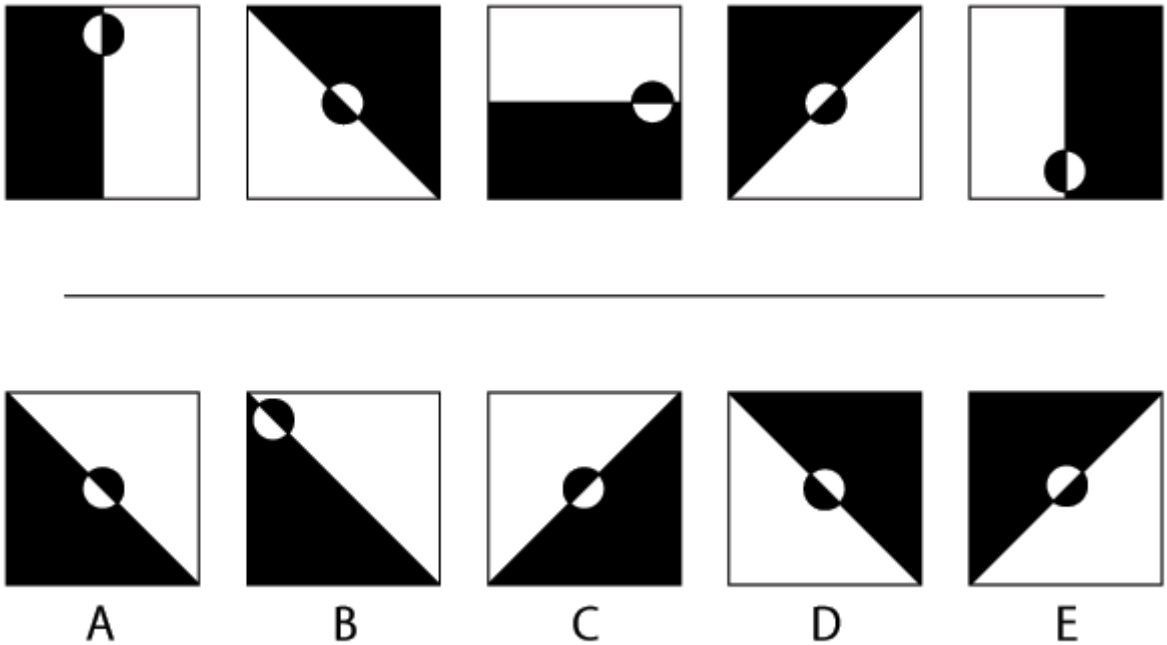
Rule 1: The box rotates 90˚ clockwise each time.
Rule 2: The total number of bricks in a box is the equal to the sum of bricks in the previous two boxes.
Rule 3: The number of shaded bricks increases by three each time.



Q29 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shield rotates 45˚ counterclockwise each time.
Rule 2: The star moves two places clockwise each time.
Rule 3: The circle moves one place clockwise each time.



Q30 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The dividing line between black and white rotates 45˚ counterclockwise each time.
Rule 2: The two halves of the box alternate between black and white.
Rule 3: The circle moves back and forth along the dividing line, with each half, again, alternating between black and white.

-- End of Test --

ABSTRACT REASONING TEST 4

Instructions

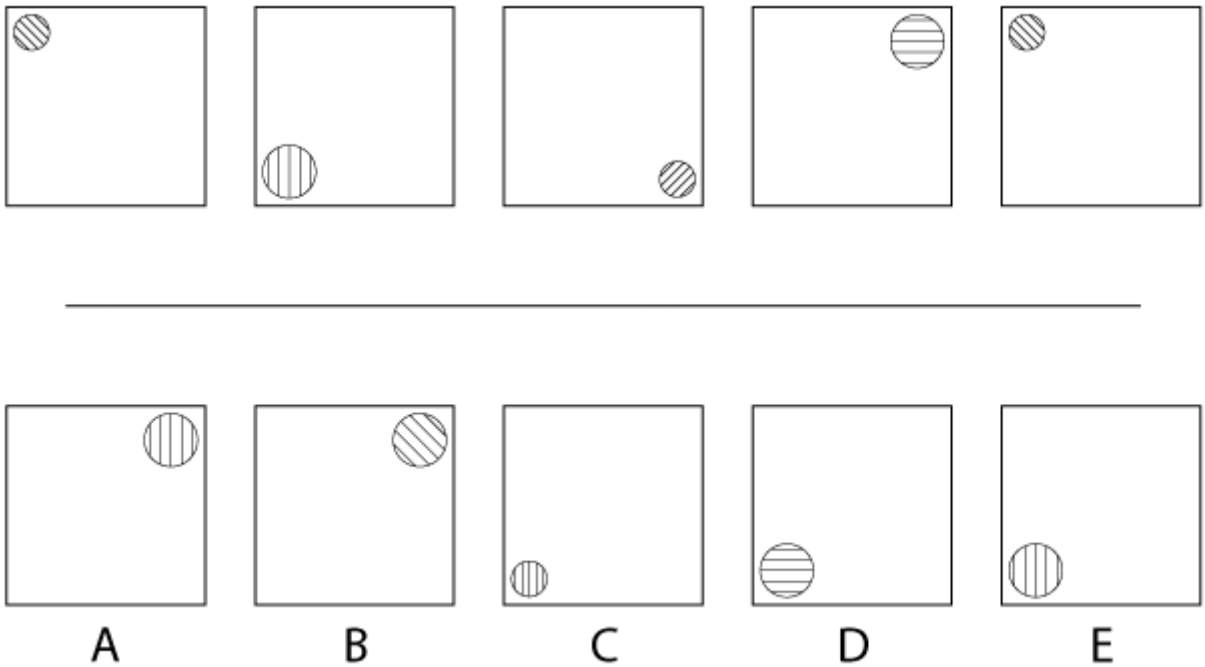
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

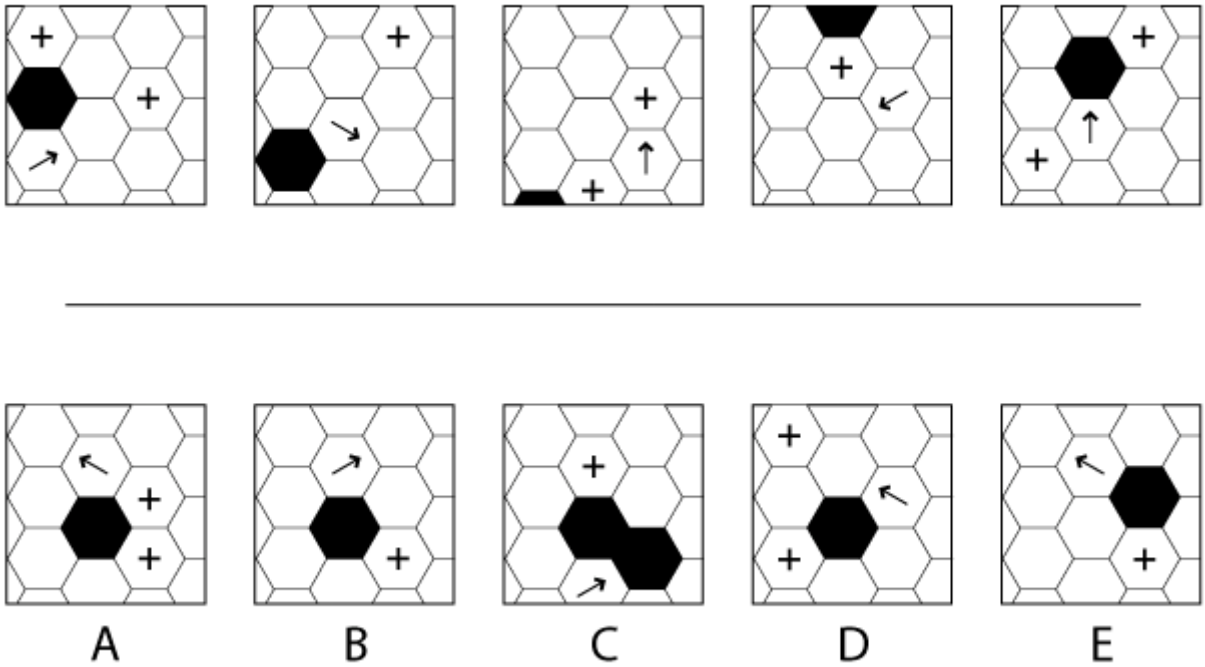
Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**



Q1 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The circle moves counterclockwise to the next corner each time.
Rule 2: The circle rotates 45˚ clockwise each time.
Rule 3: The circle alternates between large and small.



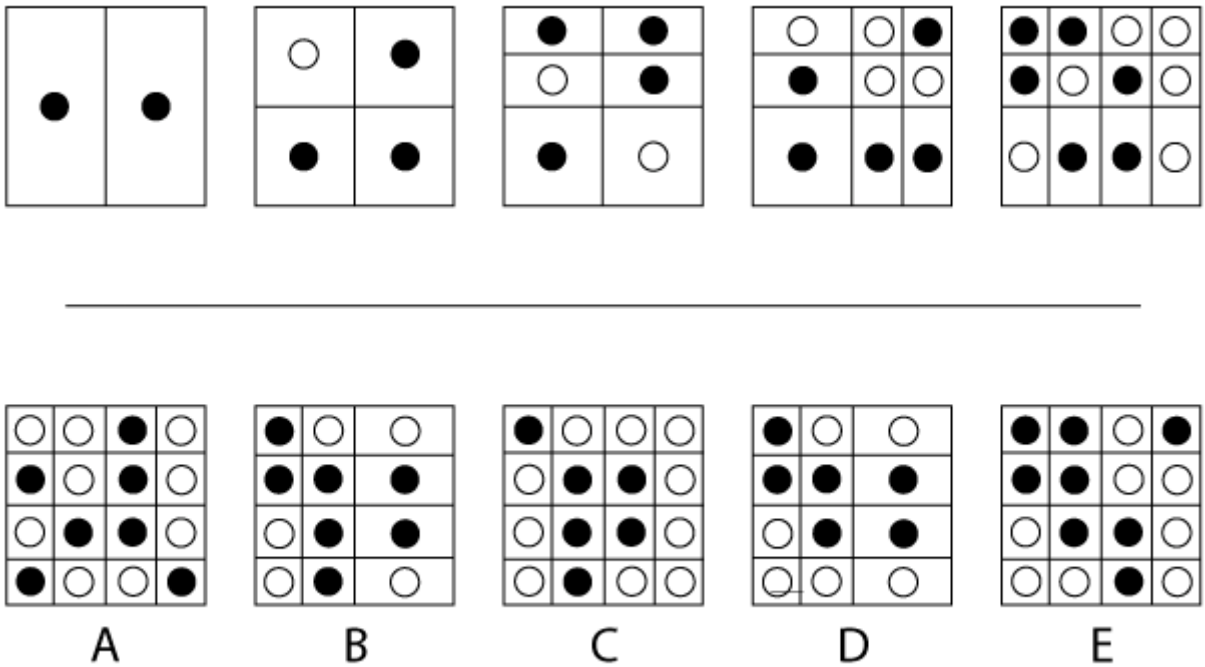
Q2 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow moves in the direction it points each time.

Rule 2: The number of crossed cells alternates between one and two each time.

Rule 3: The shaded cell moves down one place each time. When it reaches the bottom cell, it begins again on the next row.



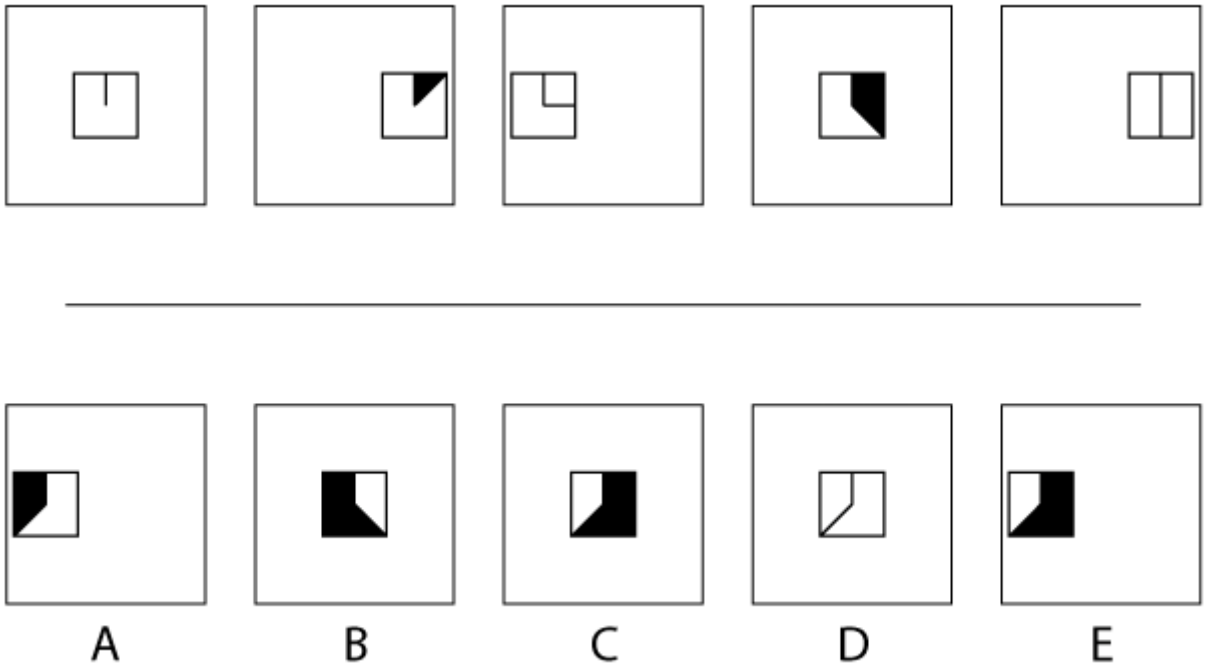
Q3 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: A new line is added each time.

Rule 2: Every box created is filled with a circle.

Rule 3: The total number of shaded circles increases by one each time.



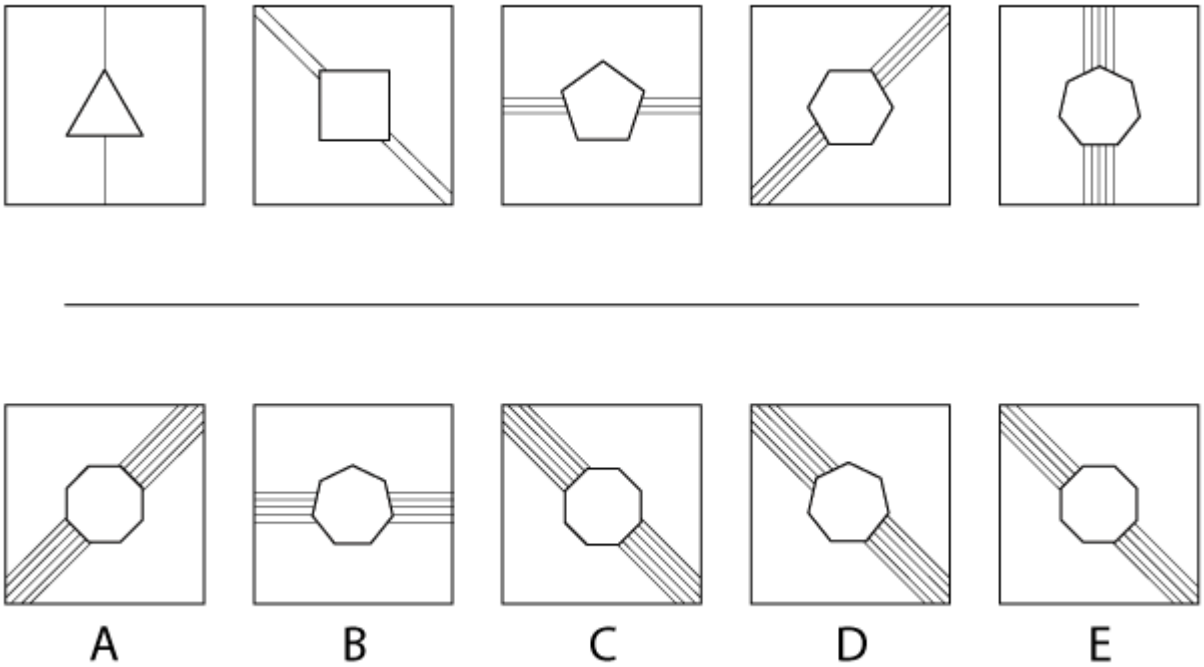
Q4 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The square moves one place to the right each time. When it reaches the right of the box, it begins again from the left.

Rule 2: The expanding segment of the square increases by one each time.

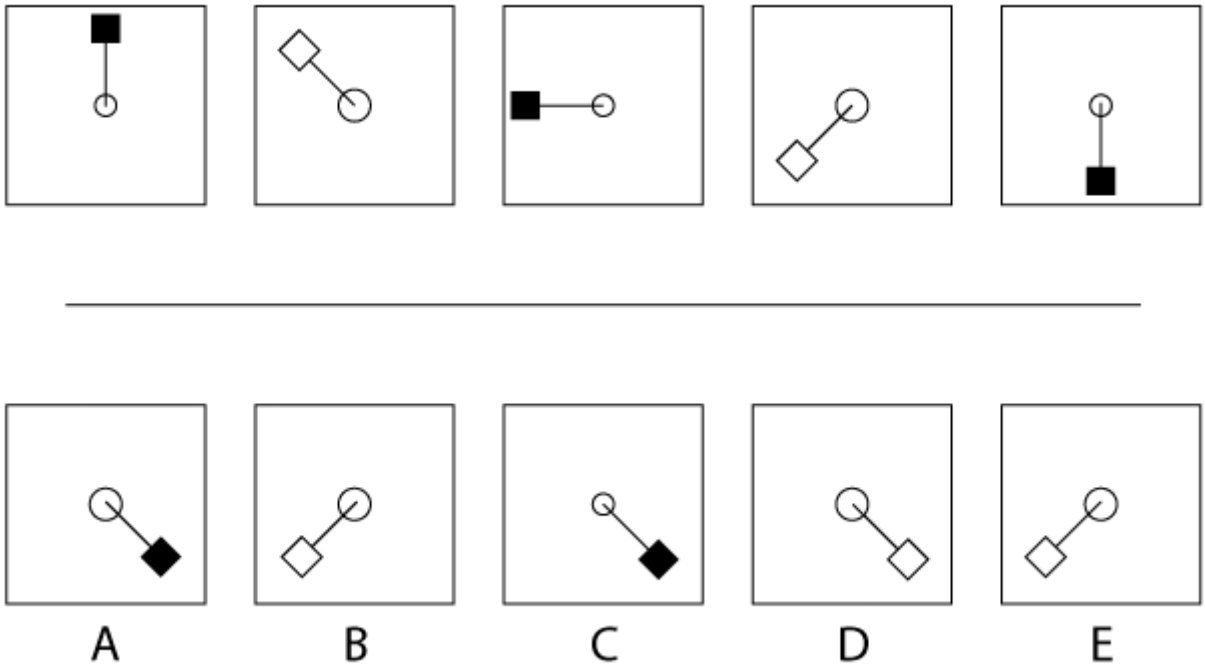
Rule 3: The expanding segment of the square alternates between shaded and unshaded.



Q5 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

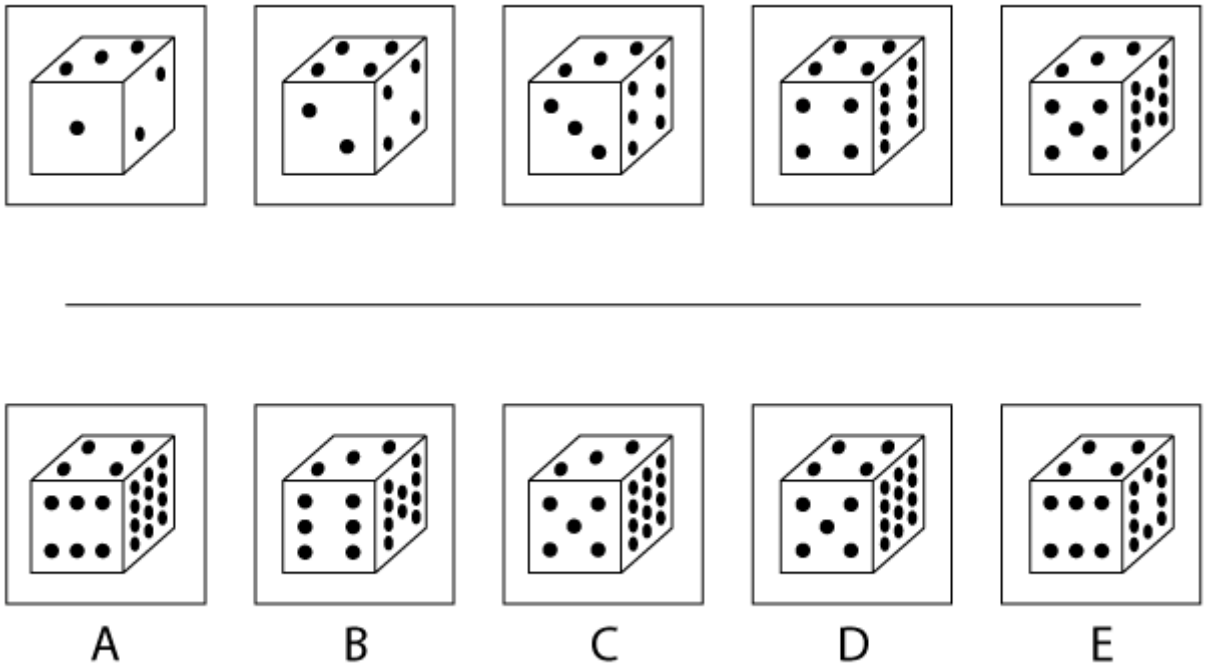
Rule 1: The total number of edges on the central shape increases by one each time.
Rule 2: The total number of lines in each box increases by one each time.
Rule 3: The lines rotate 45˚ counterclockwise each time.



Q6 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The symbol rotates 45˚ counterclockwise each time.
Rule 2: The circle alternates between being large and small.
Rule 3: The square alternates between shaded and unshaded.



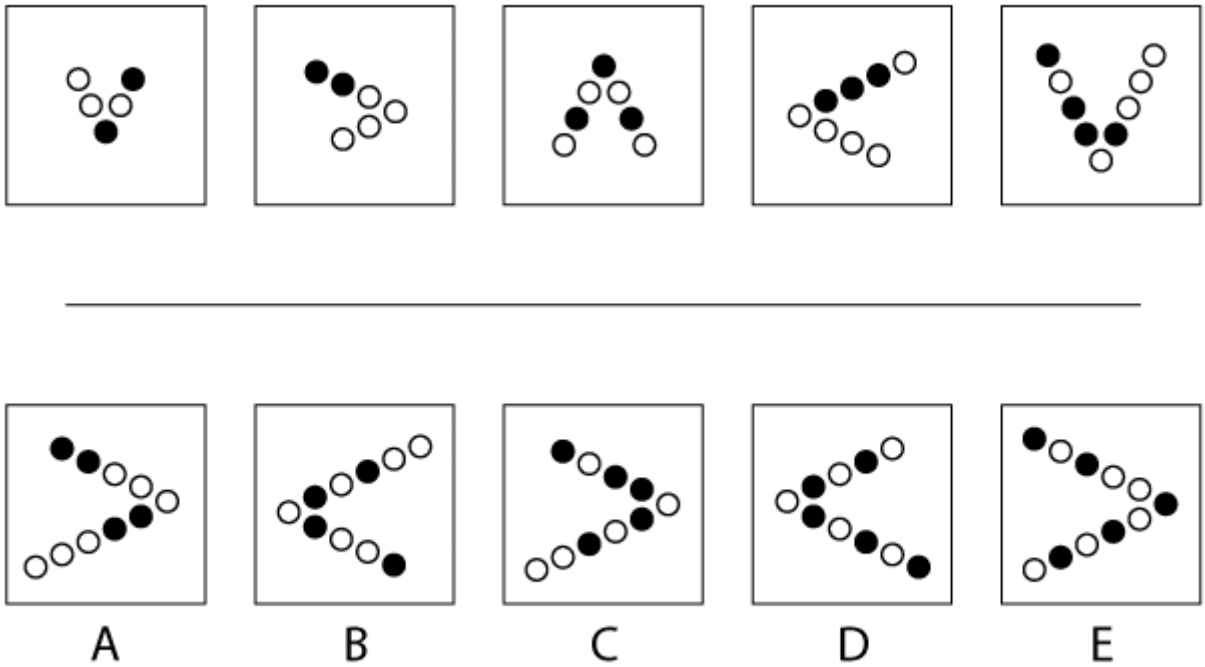
Q7 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of dots on the right side face increases by 2 each time.

Rule 2: The total number of dots on the top side face alternates between 3 and 4.

Rule 3: The total number of dots on the front side face increases by 1 each time.



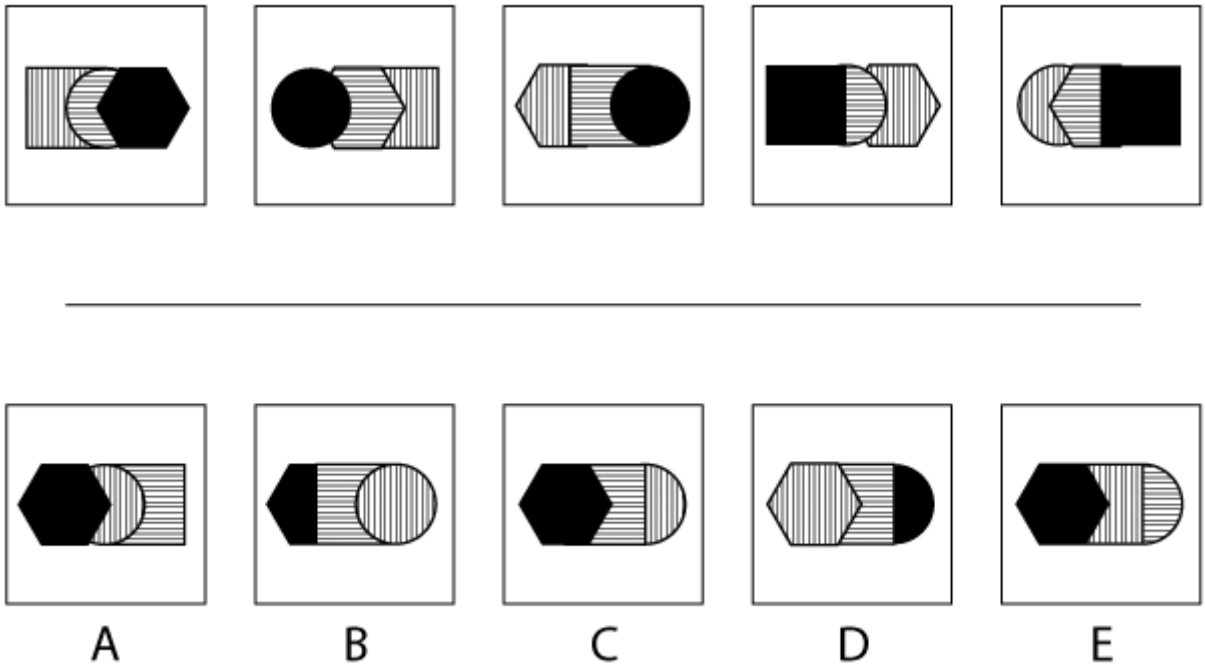
Q8 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: Each time the ‘V’ shape rotates 90˚ counterclockwise.

Rule 2: Each time the total number of circles increases by one.

Rule 3: The total number of shaded circles increases by one every two boxes.



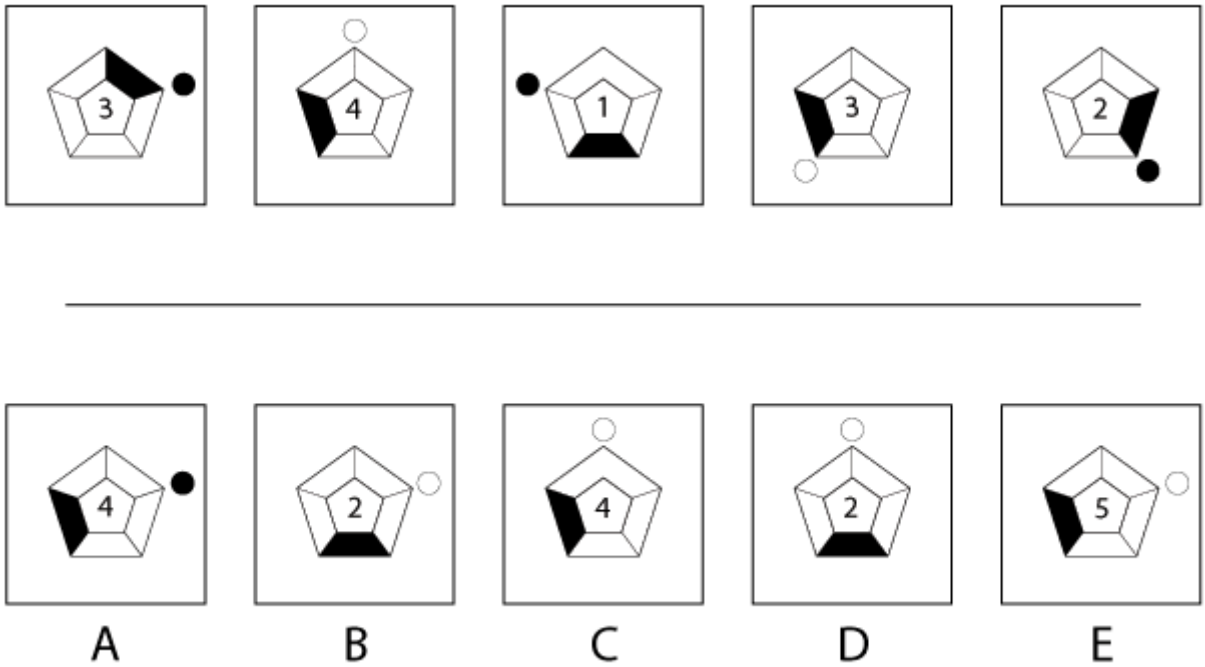
Q9 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shapes move one place to the left each time.

Rule 2: The shaded shape alternates between the left and right sided shape.

Rule 3: The left and right sided shapes alternate between being in the foreground and the background.



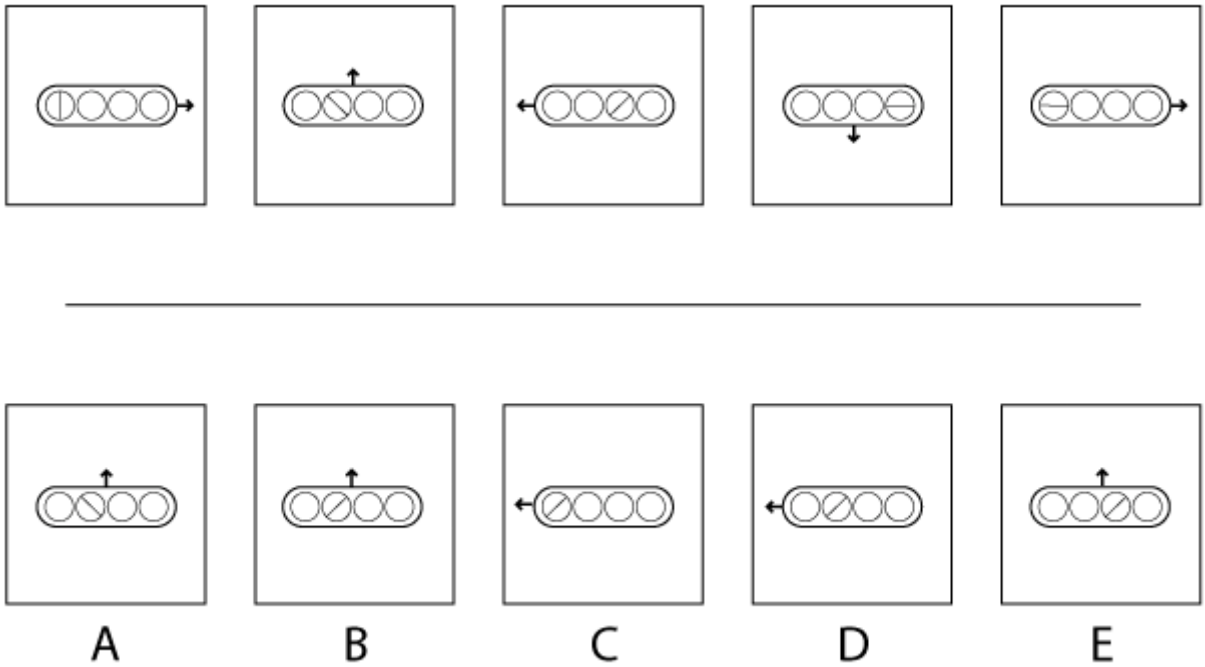
Q10 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: Each time the circle moves counterclockwise to the next point of the pentagon.

Rule 2: The circle alternates between shaded and unshaded.

Rule 3: The number in the pentagon indicates how many places clockwise the shaded segment of the pentagon moves in the next box.



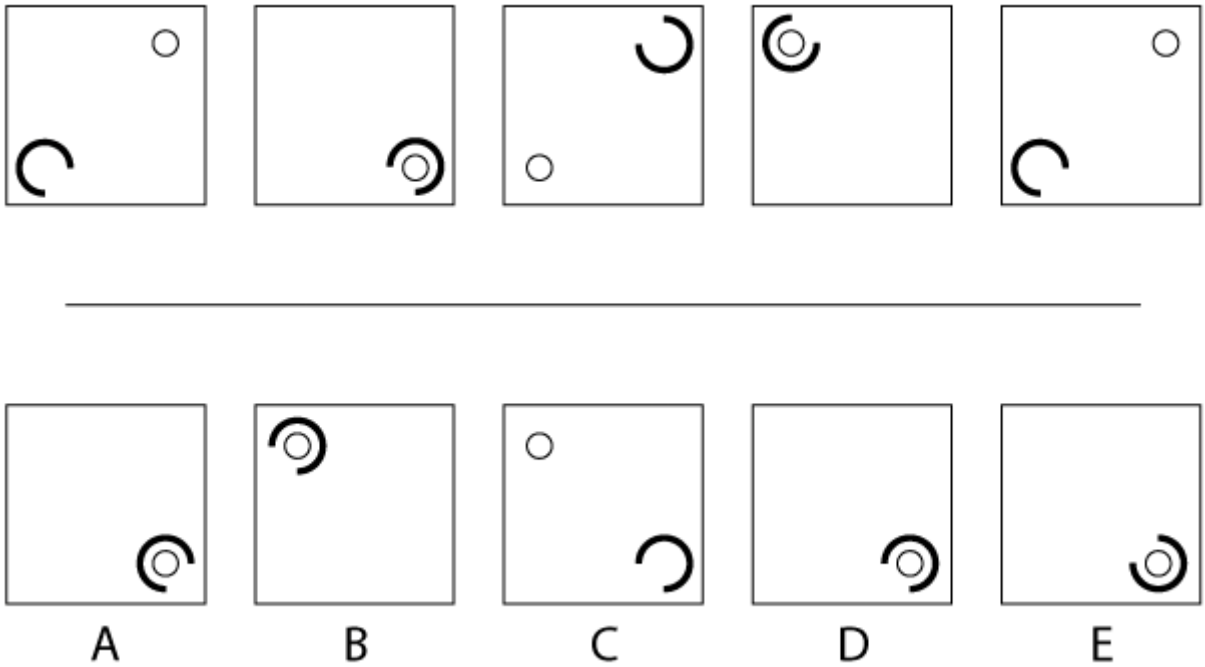
Q11 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow moves one place counterclockwise around the track each time.

Rule 2: The line in the circle rotates counterclockwise by 45˚, then 90˚, then 135˚ and so on.

Rule 3: The lined circle moves one place to the right each time, and then begins again from the left hand side.



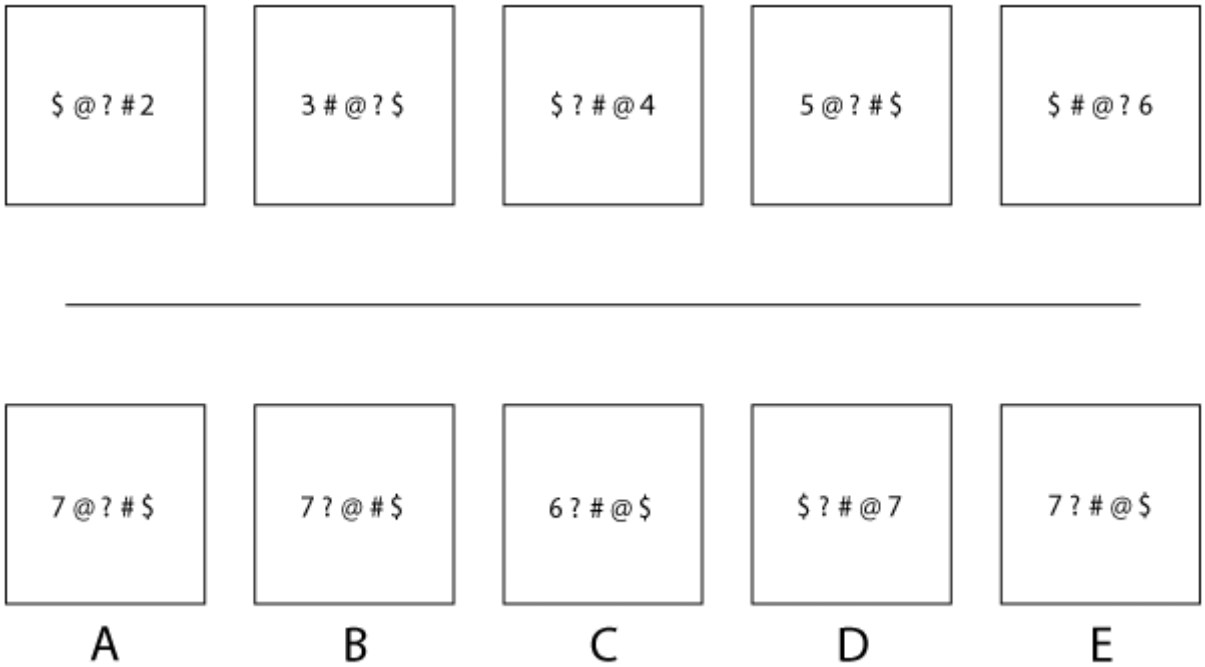
Q12 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The circle moves clockwise to the next corner each time.

Rule 2: The shaded symbol moves counterclockwise to the next corner each time.

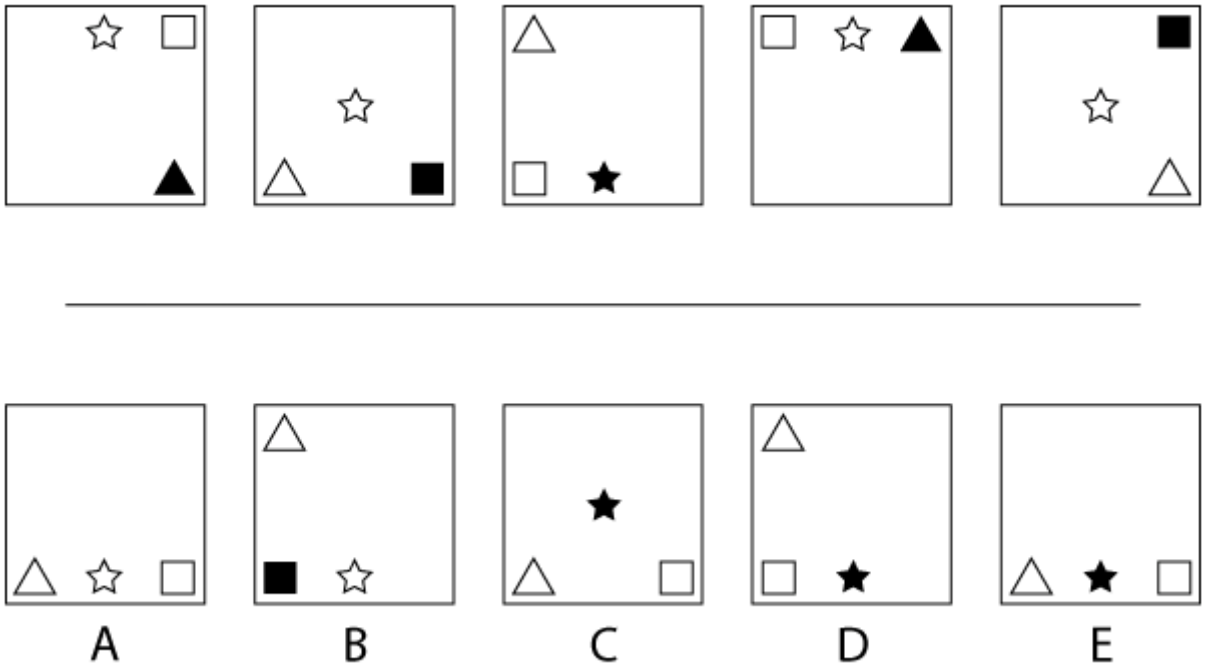
Rule 3: The shaded symbol rotates 90˚ clockwise each time.



Q13 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

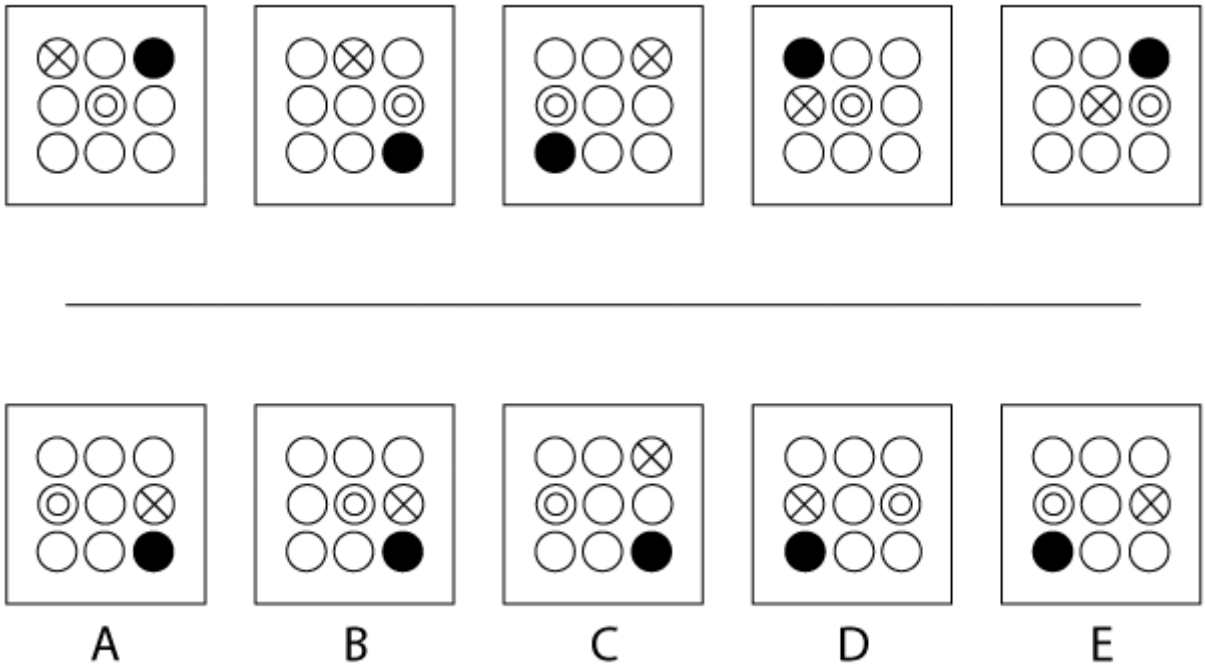
Rule 1: The number and the '$' switch places each time.
Rule 2: Each time the number increases by one.
Rule 3: The three middle symbols each move one place to the right each time.



Q14 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

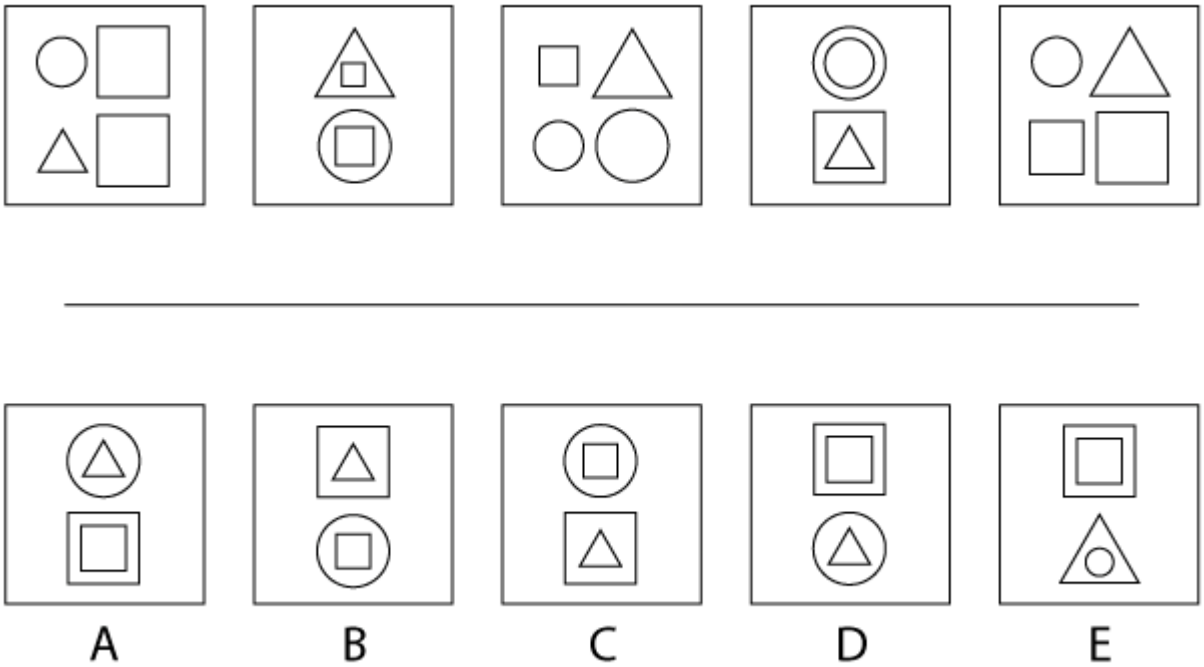
Rule 1: The square and triangle move clockwise to the next corner each time.
Rule 2: The star moves down one place each time, when it reaches the bottom of the box, it then begins again from the top.
Rule 3: The shaded shape sequence is triangle, square, star, then repeat.



Q15 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The crossed circle moves one place to the right each time. When it reaches the end of the row, it begins again on the next row.
Rule 2: The shaded circle moves one place clockwise to the next corner.
Rule 3: The double circle moves one place to the right each time, and then the pattern repeats.

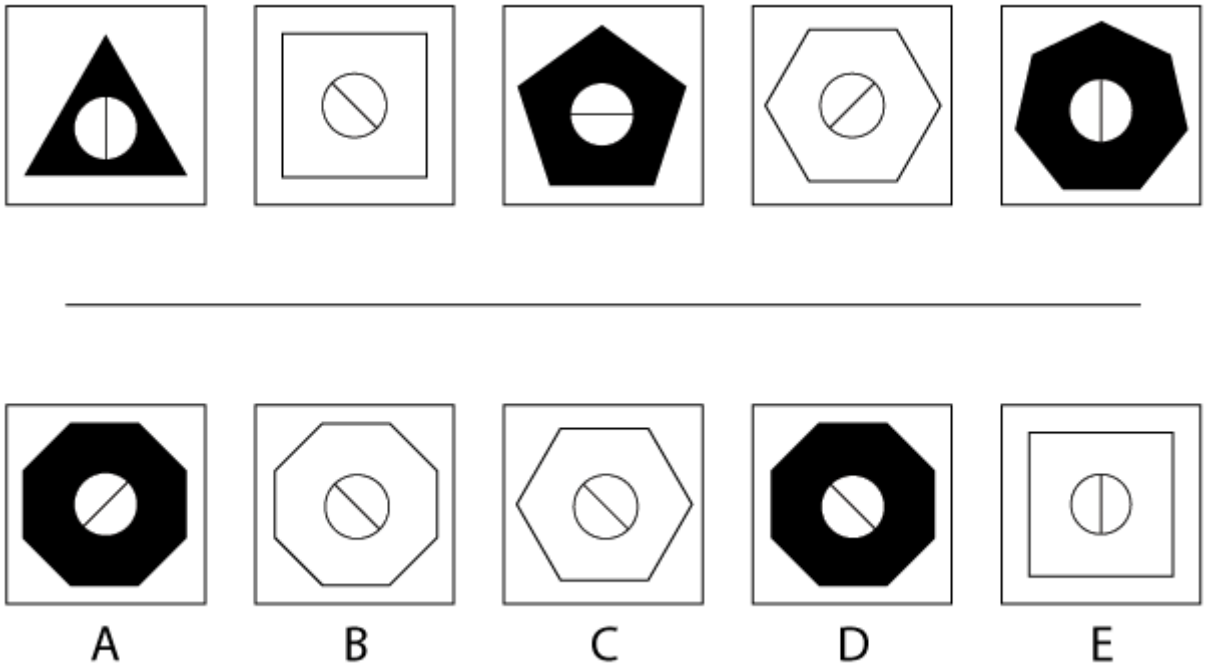


Q16 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Every two boxes are pairs, and are independent of the other boxes.

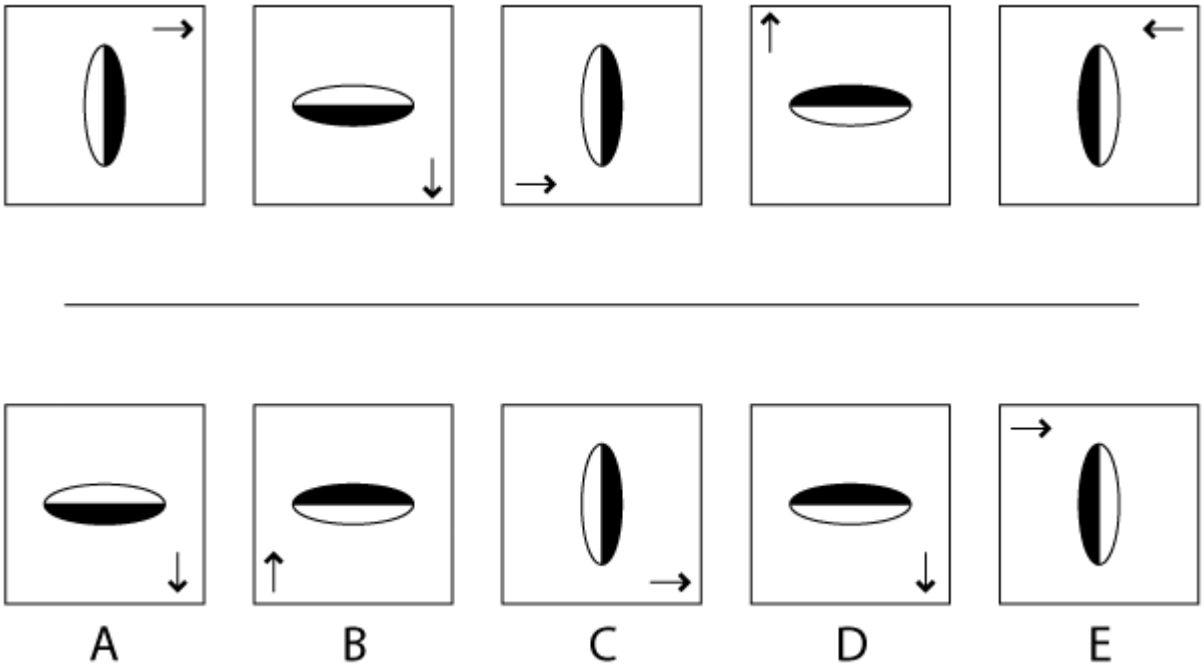
Rule 1: The large(right hand) shapes become small in the next box, whereas the small(left hand) shapes become large.
Rule 2: Both of the top shapes merge and become the bottom symbol of the next box.
Rule 3: Both of the bottom shapes merge and become the top symbol of the next box.



Q17 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

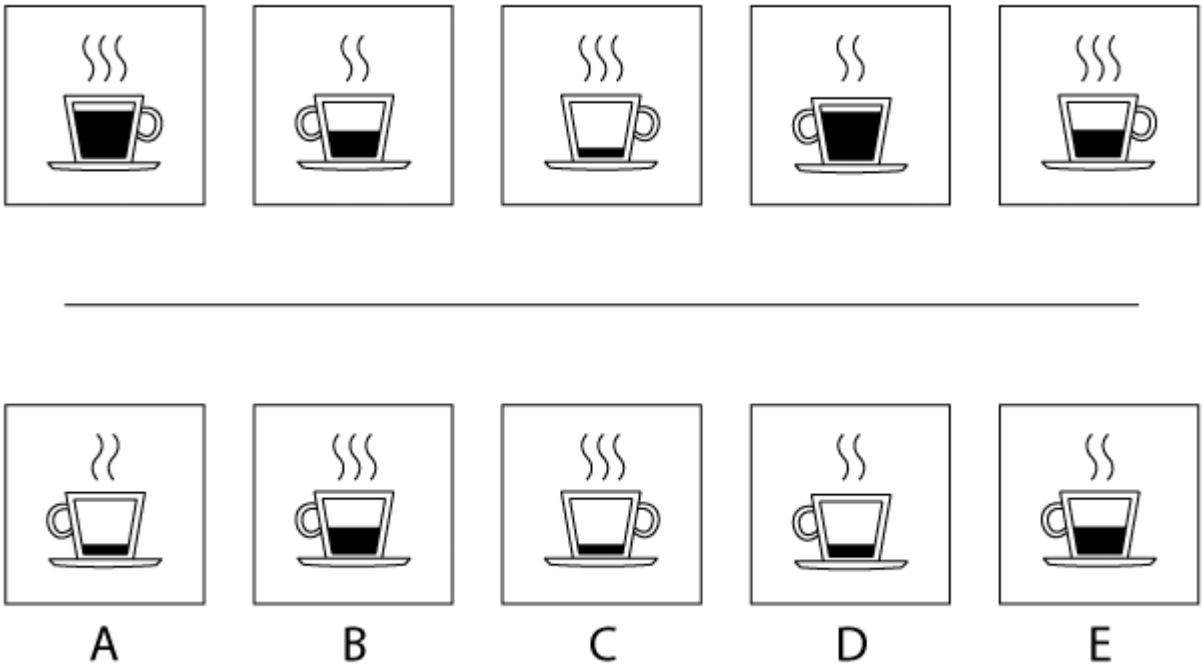
Rule 1: The large, outer shape alternates between shaded and unshaded each time.
Rule 2: The total number of edges of the large outer shape increases by one each time.
Rule 3: The lined circle in the centre rotates 45˚ counterclockwise each time.



Q18 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

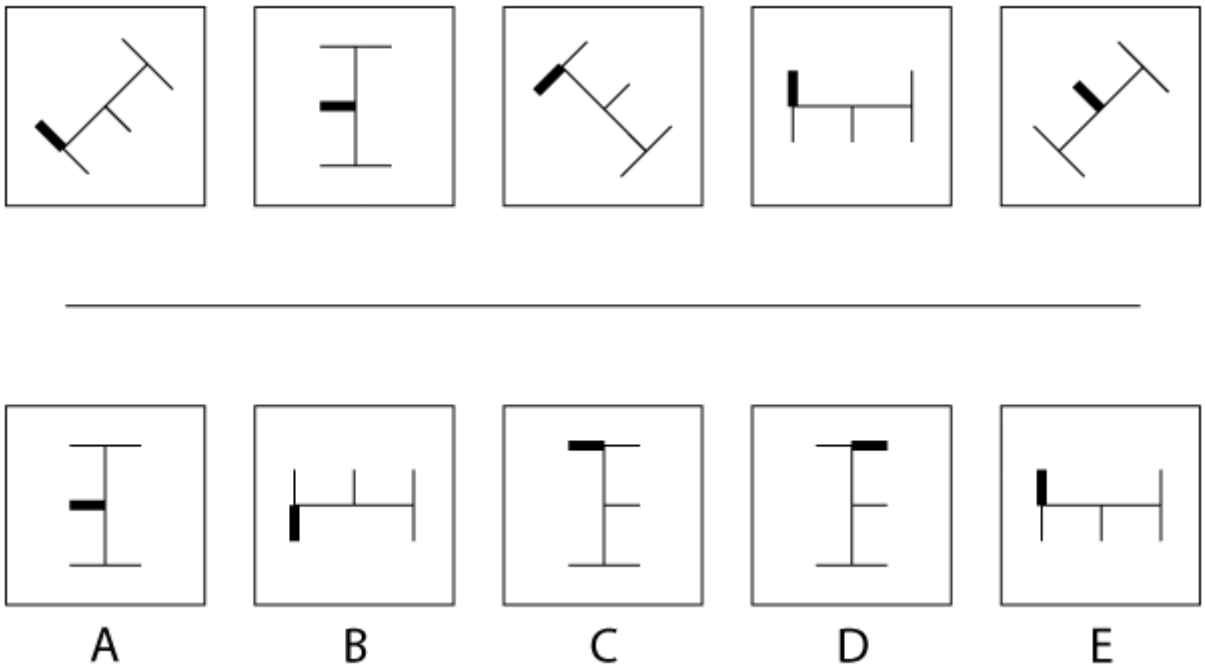
Rule 1: The oval symbol rotates 90˚ each time.
Rule 2: The arrow moves one place clockwise to the next corner each time.
Rule 3: The arrow indicates which side of the oval is highlighted.



Q19 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

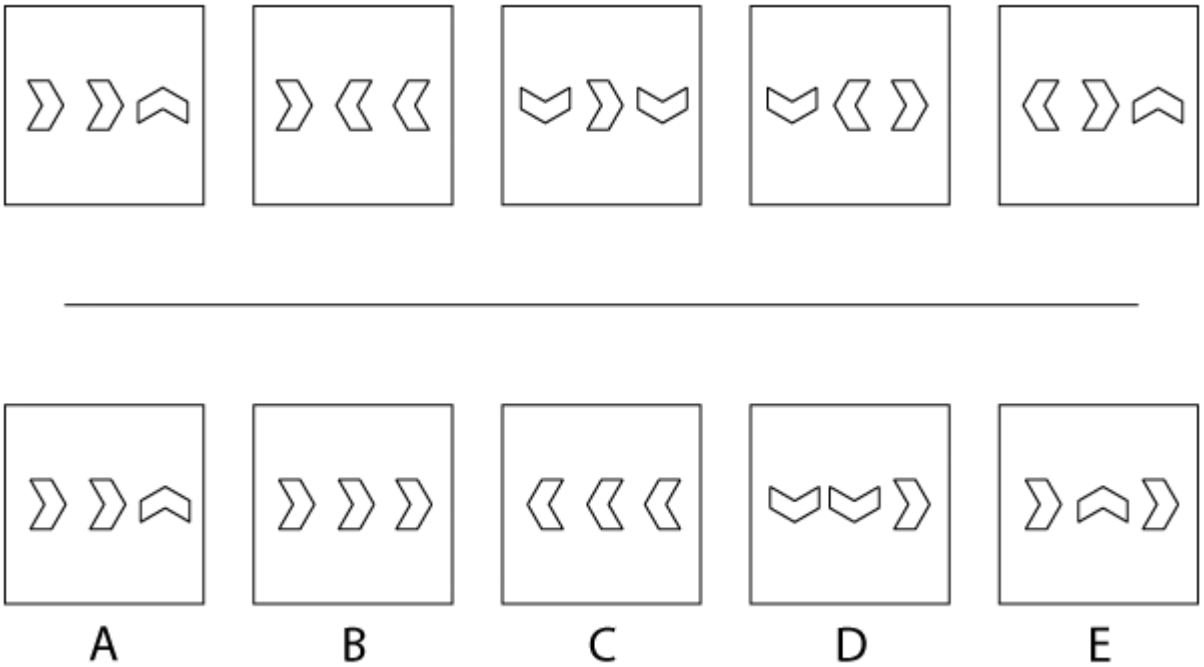
Rule 1: The cup goes from full to half full to almost empty and then the pattern repeats.
Rule 2: The number of steam lines coming from the cup alternates between two and three.
Rule 3: The cup handle alternates between being on the right and left side of the cup.



Q20 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

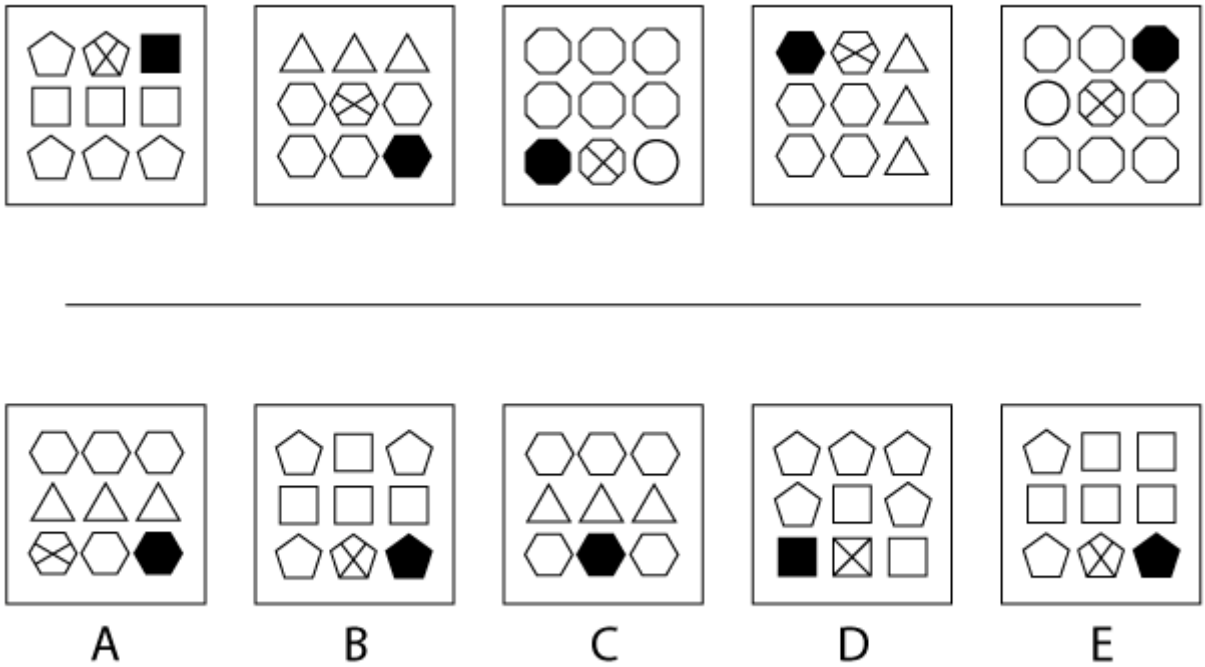
Rule 1: The symbol rotates 45˚ counterclockwise each time.
Rule 2: The thick branch of the symbol moves one place clockwise around the symbol each time, regardless of the orientation of the symbol.
Rule 3: The missing branch alternates between the middle two branches, regardless of the orientation of the symbol.



Q21 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The left hand symbol rotates 90˚ clockwise every two boxes.
Rule 2: The middle symbol alternates between pointing left and right each time.
Rule 3: The right hand symbol rotates 90˚ counterclockwise each time.



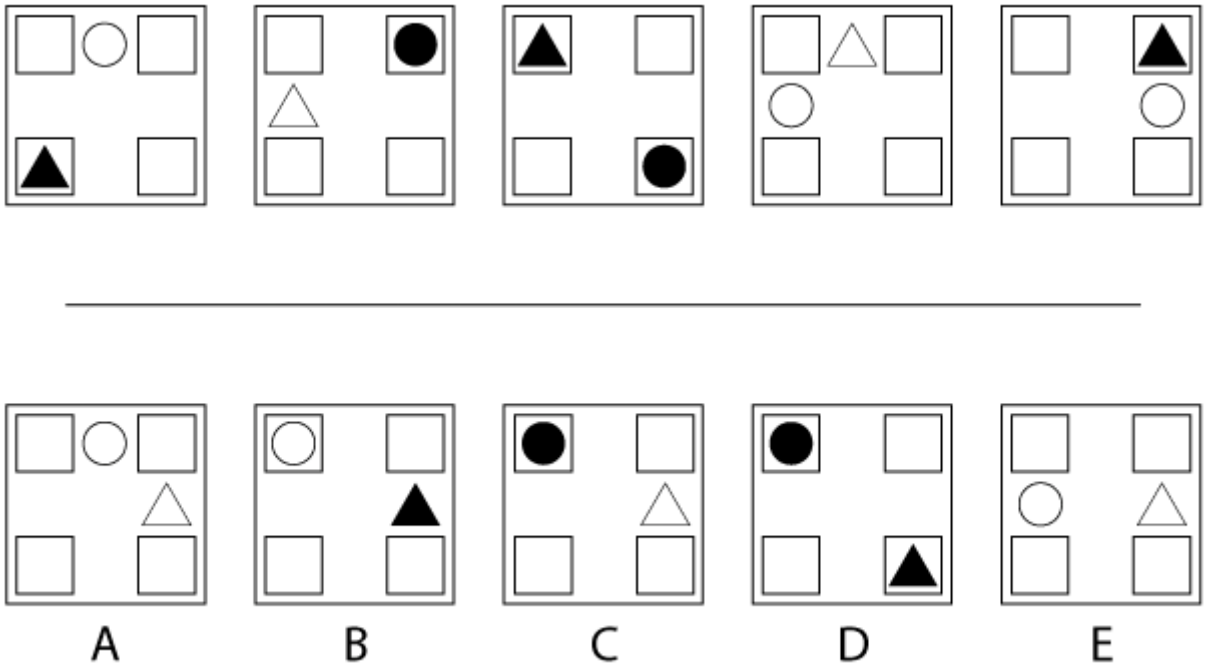
Q22 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: Each box has 9 shapes. The total number of edges on a shape is equal to the total number of that shape.

Rule 2: The shaded shape moves one place clockwise to the next corner each time.

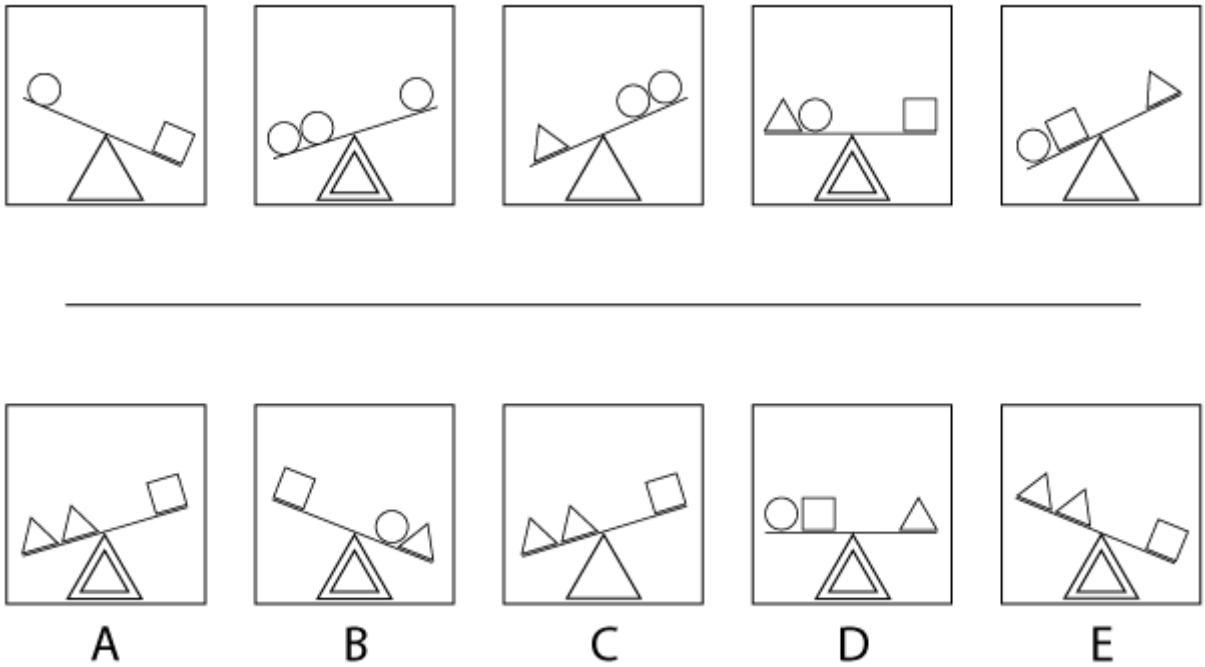
Rule 3: The crossed shape moves one place down each time and then the pattern repeats.



Q23 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

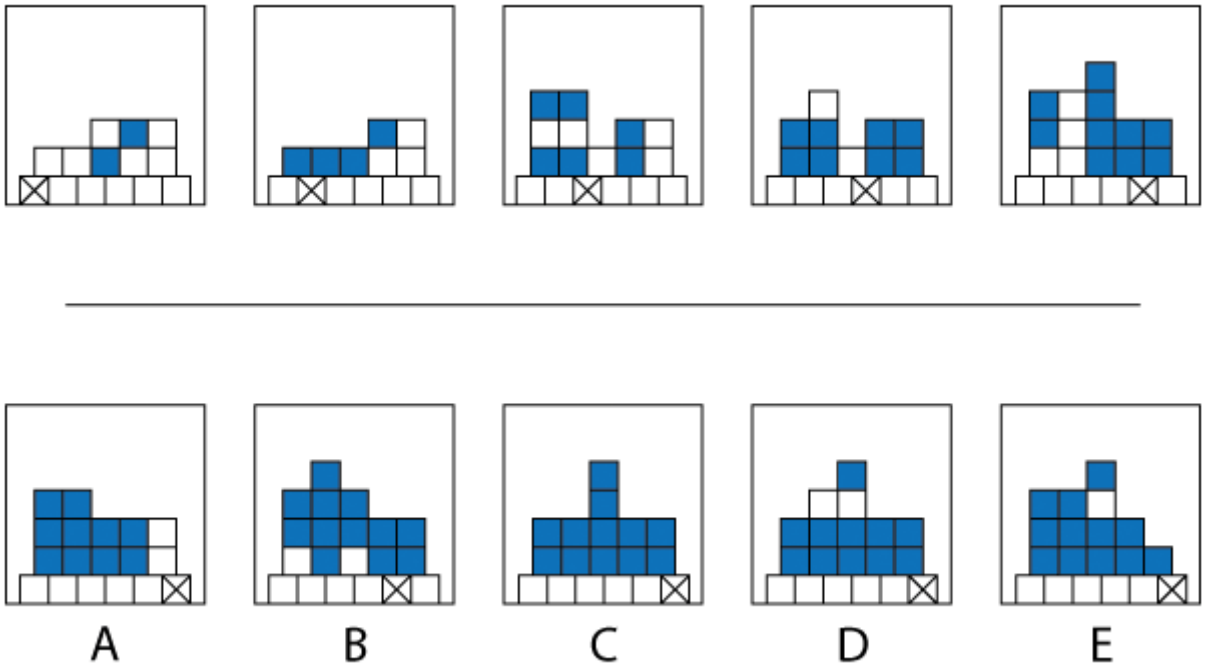
Rule 1: The circle moves clockwise one place, then two places, then three places and so on, each time.
Rule 2: The triangle moves one place clockwise around the box each time.
Rule 3: Whenever two shapes overlap, the overlapping area is shaded.



Q24 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

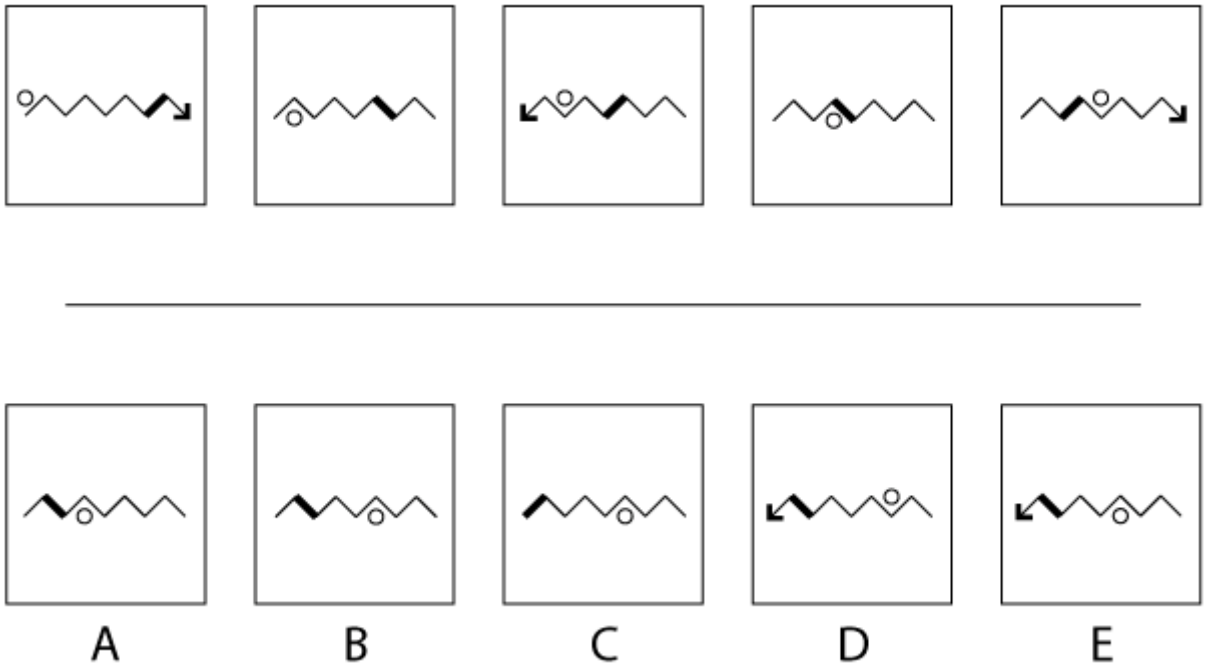
Rule 1: Each shape's weight is equal to its total number of edges.
Rule 2: The total number of edges on the left side of the scales increases by one each time.
Rule 3: The pivot alternates between consisting of one triangle and two triangles each time.



Q25 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

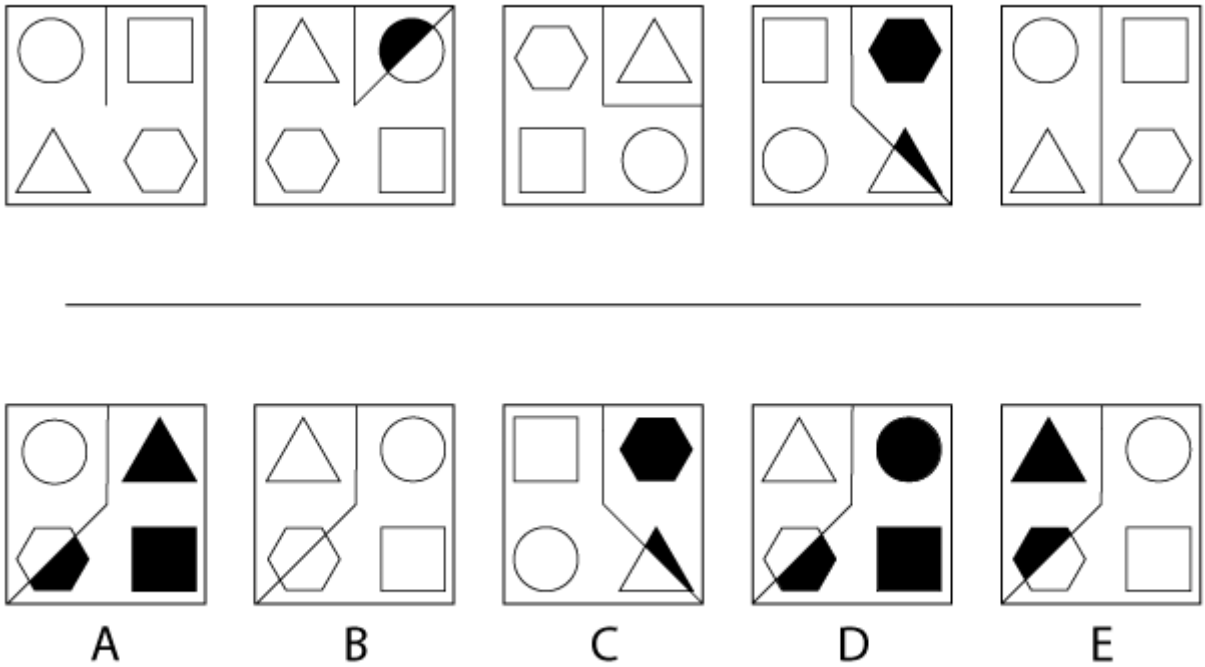
Rule 1: The total number of boxes increases by four, then decreases by one, then increases by four again and so on.
Rule 2: The crossed box moves one place the right each time.
Rule 3: The total number of shaded boxes increases by two each time.



Q26 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

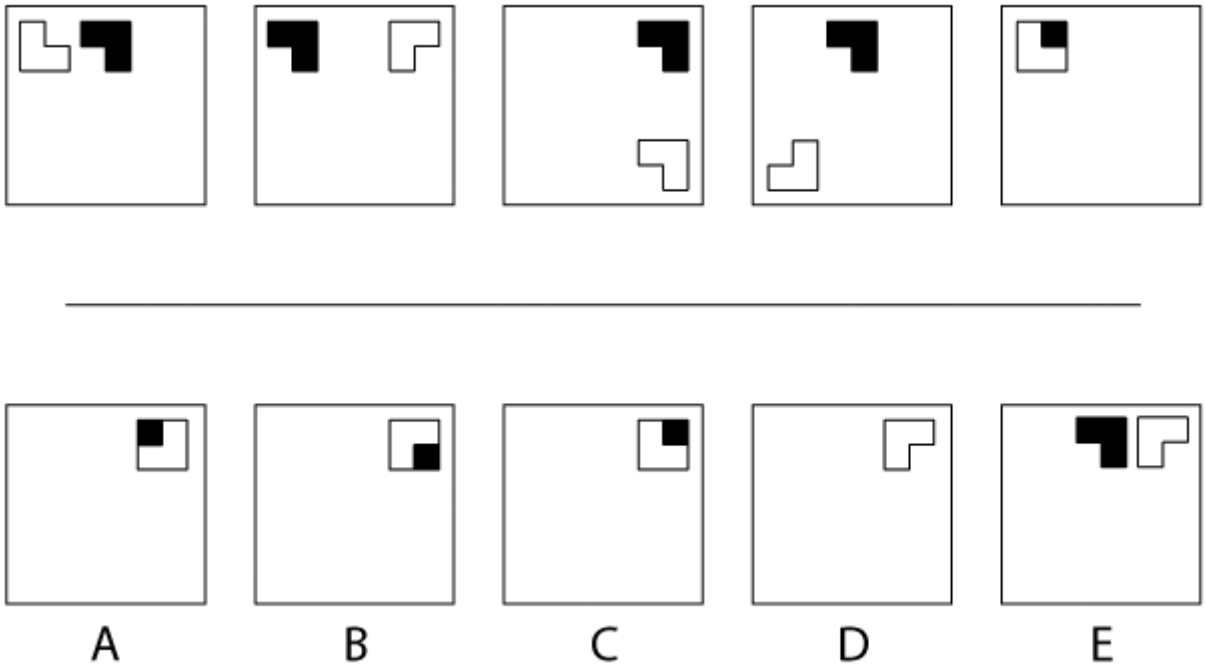
Rule 1: The circle moves one place to the right each time.
Rule 2: The thick line moves one place to the left each time.
Rule 3: The symbol alternates between having a right and left pointing arrow, with a ‘no arrow’ box in between.



Q27 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

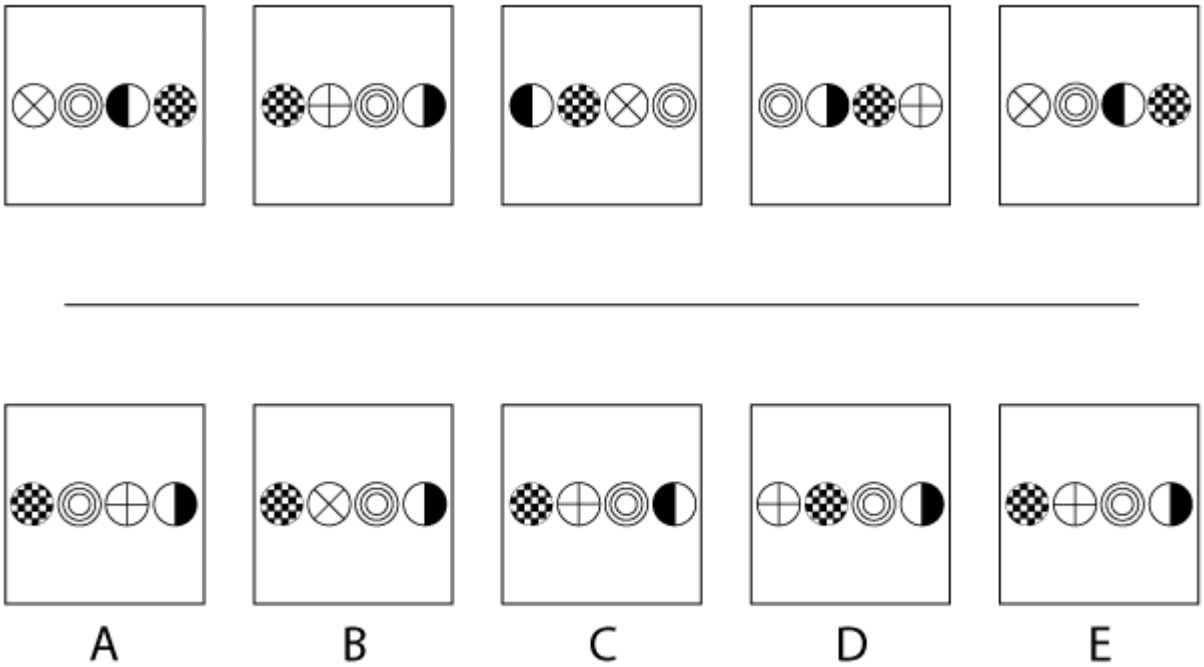
Rule 1: Each shape moves clockwise to the next corner each time.
Rule 2: The segment line rotates 45˚ clockwise each time.
Rule 3: The shapes inside the segment alternates between shaded and unshaded.



Q28 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

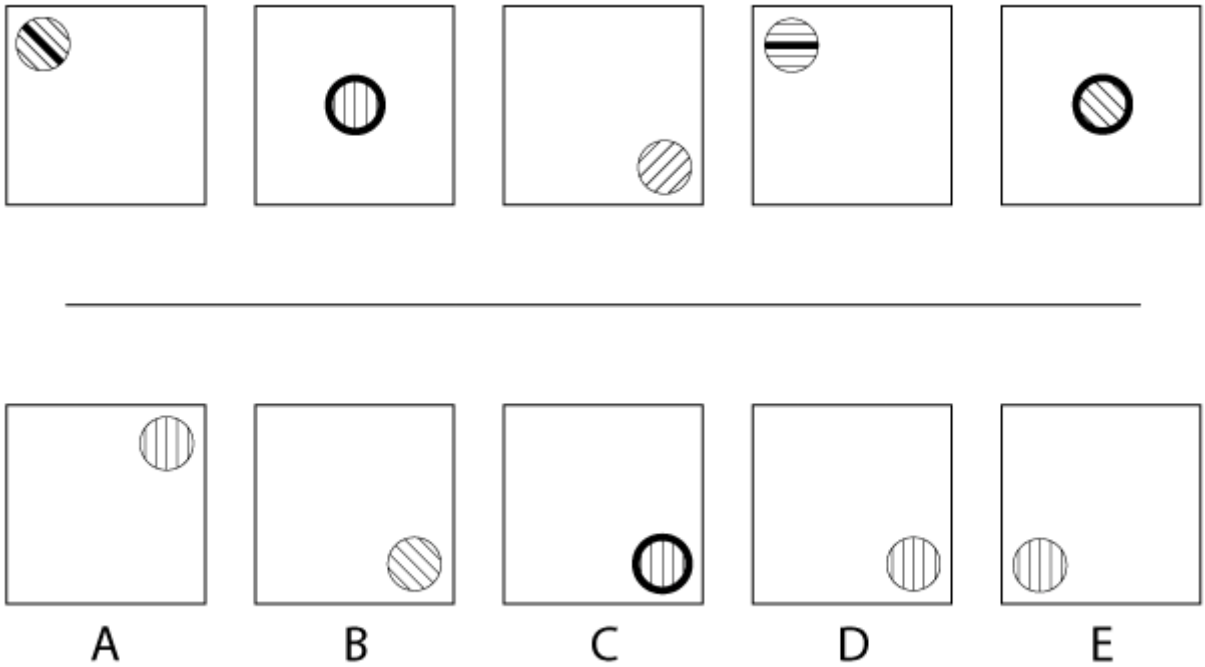
Rule 1: The unshaded symbol rotates 90˚ clockwise each time.
Rule 2: The unshaded symbol moves one place clockwise to the next corner each time.
Rule 3: The shaded symbol moves one place to the left each time, and then the pattern repeats from the right.



Q29 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: Each symbol moves one place to the right each time.
Rule 2: The halved circle shading alternates each time.
Rule 3: The quartered circle rotates 45˚ each time.



Q30 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shape moves diagonally from top-left to middle to bottom-right, then repeats.
Rule 2: The heavy shading goes from inner line, to outer line, to none, then repeats.
Rule 3: Each time the shape rotates 45° clockwise.

-- End of Test --

ABSTRACT REASONING TEST 5

Instructions

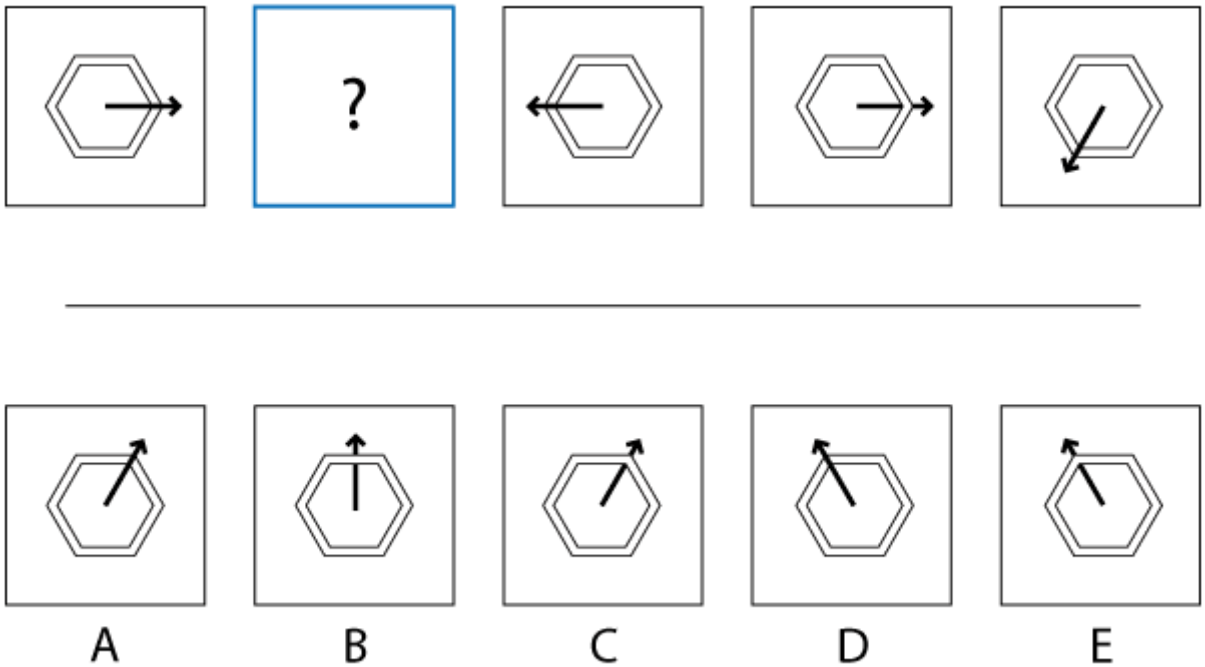
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

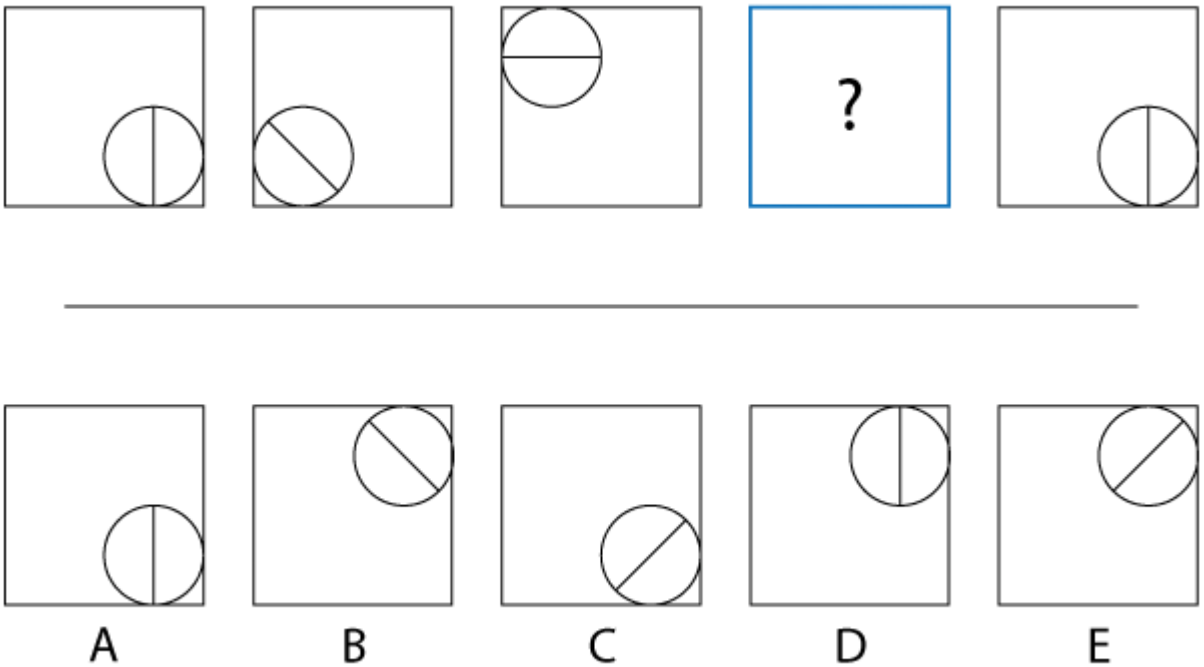


Q1 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow rotates one place counterclockwise to the next corner, then two places, then three places and so on.

Rule 2: The arrow alternates between being behind and in front of the hexagon.

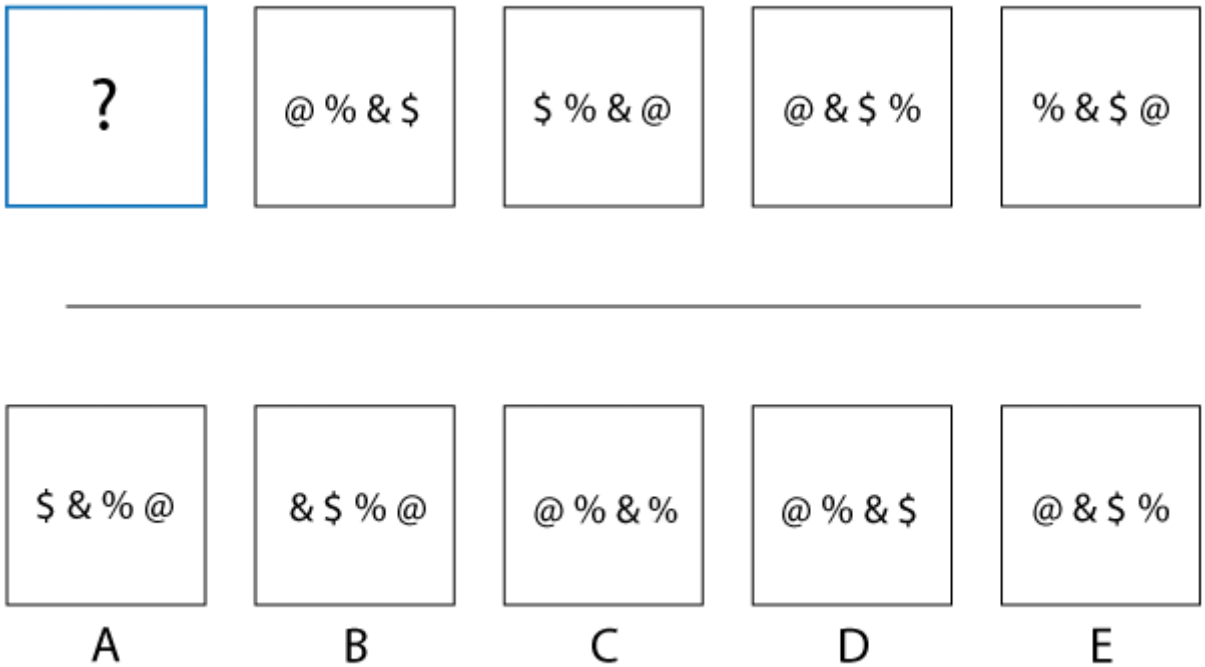


Q2 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The circle moves clockwise to the next corner each time.

Rule 2: The line in the circle rotates 45˚ counterclockwise each time.

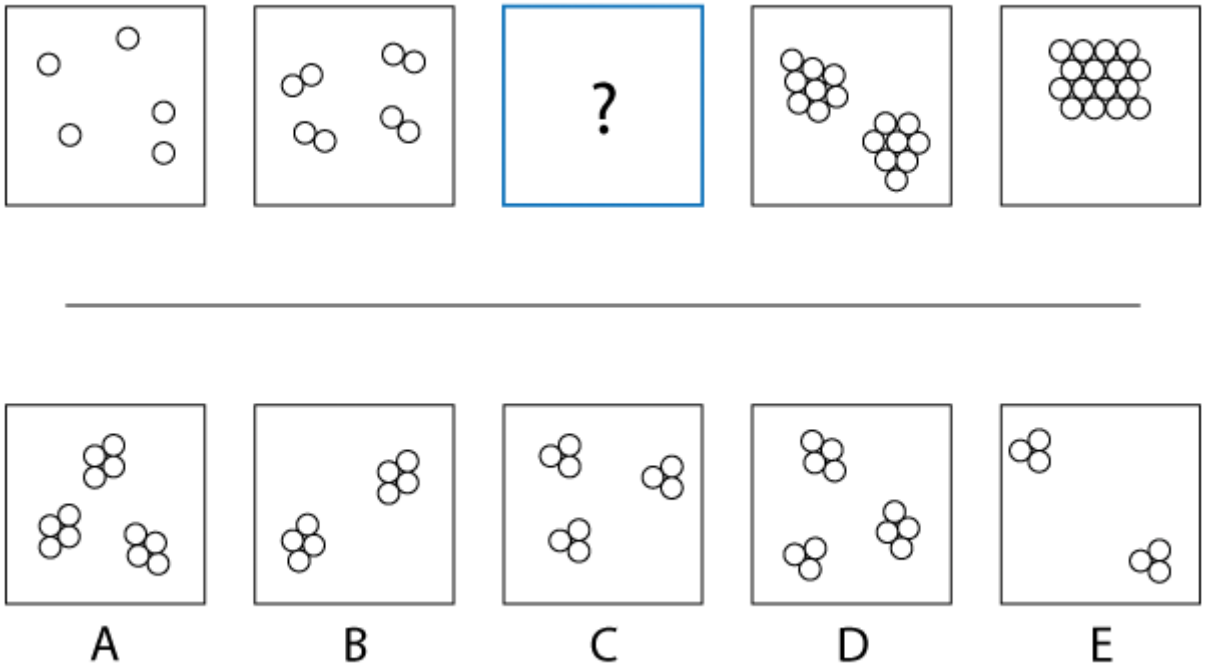


Q3 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The symbols move one place to the right each time.

Rule 2: The fourth symbol on the right becomes the first symbol on the left in the next square.

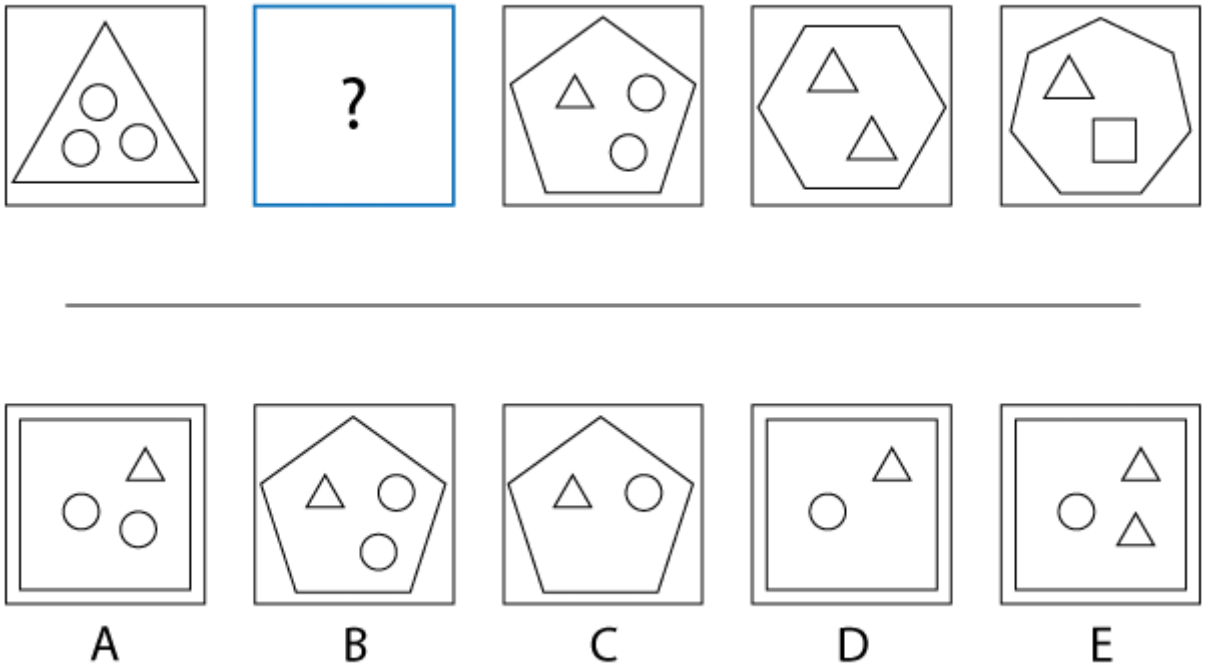


Q4 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The number of circles in each cluster doubles each time.

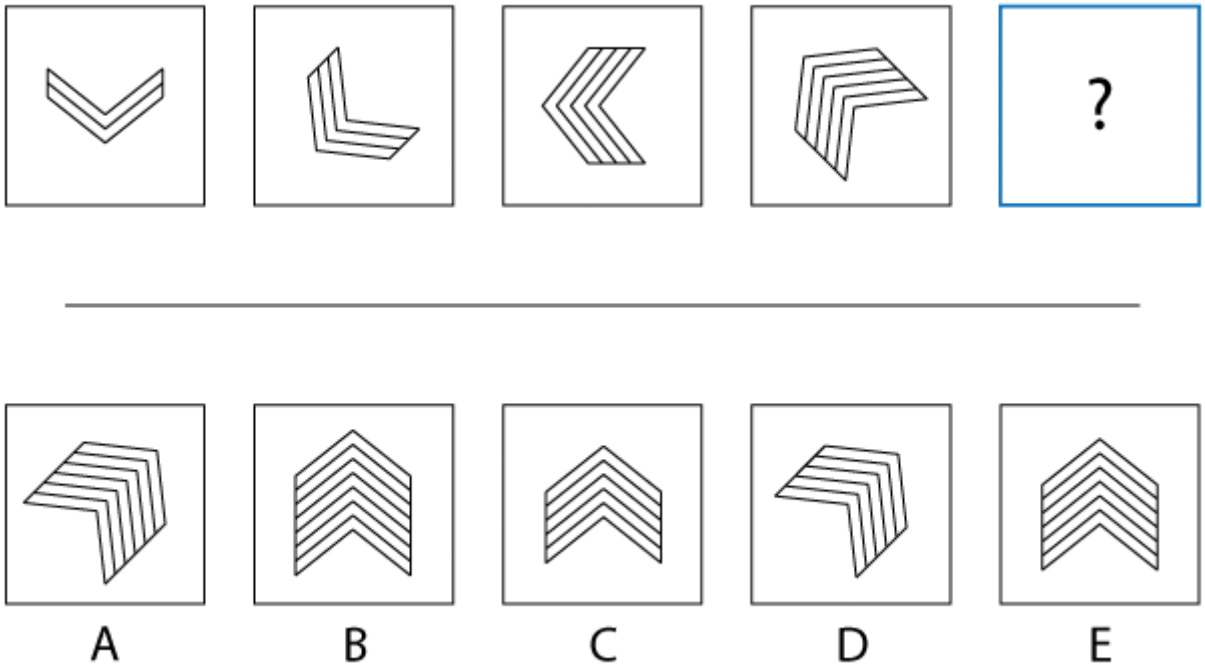
Rule 2: The total number of clusters decreases by one each time.



Q5 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of edges on the large outer shape increases by one each time.
Rule 2: The total number of edges on the small inner shapes is equal to the total number of edges on the large outer shape.

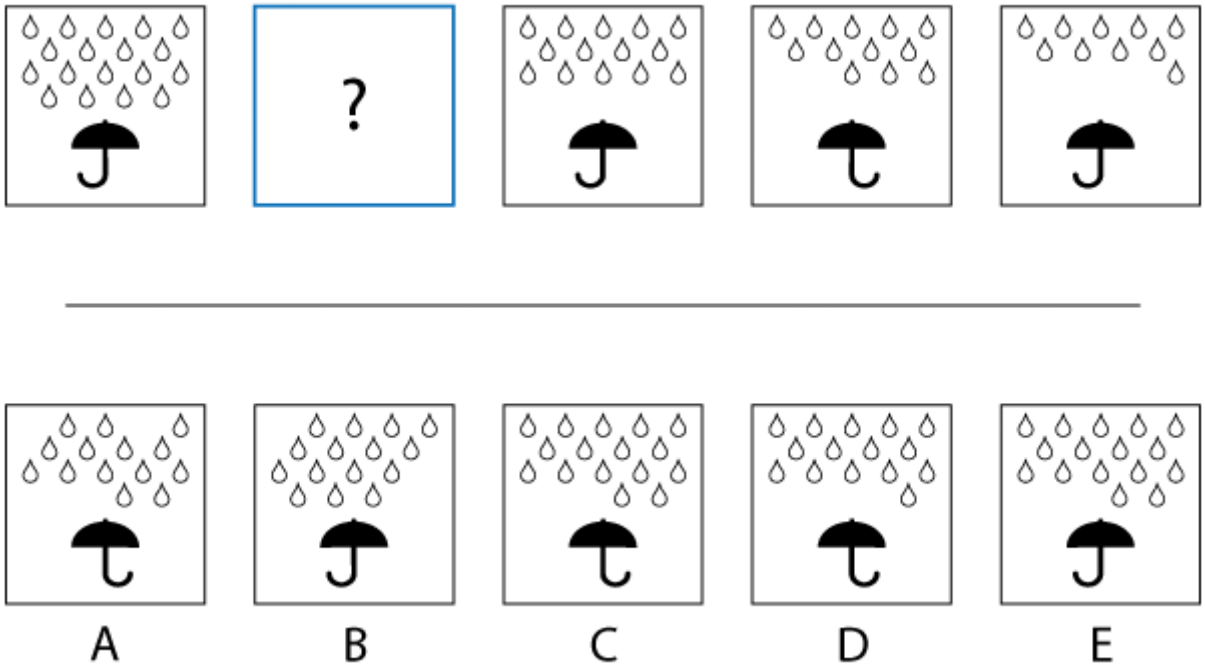


Q6 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The symbol rotates 45˚ clockwise each time.

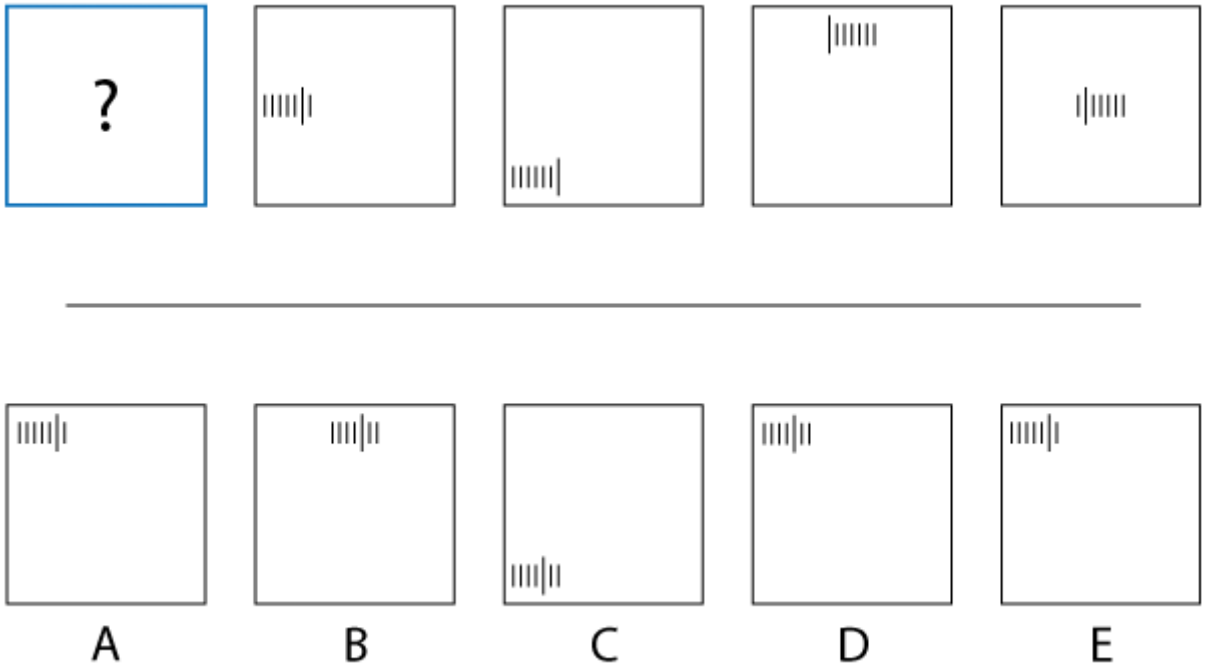
Rule 2: Each time a new arrow is added.



Q7 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The umbrella alternates between pointing left and right.
Rule 2: Each time the total number of raindrops decreases by two.

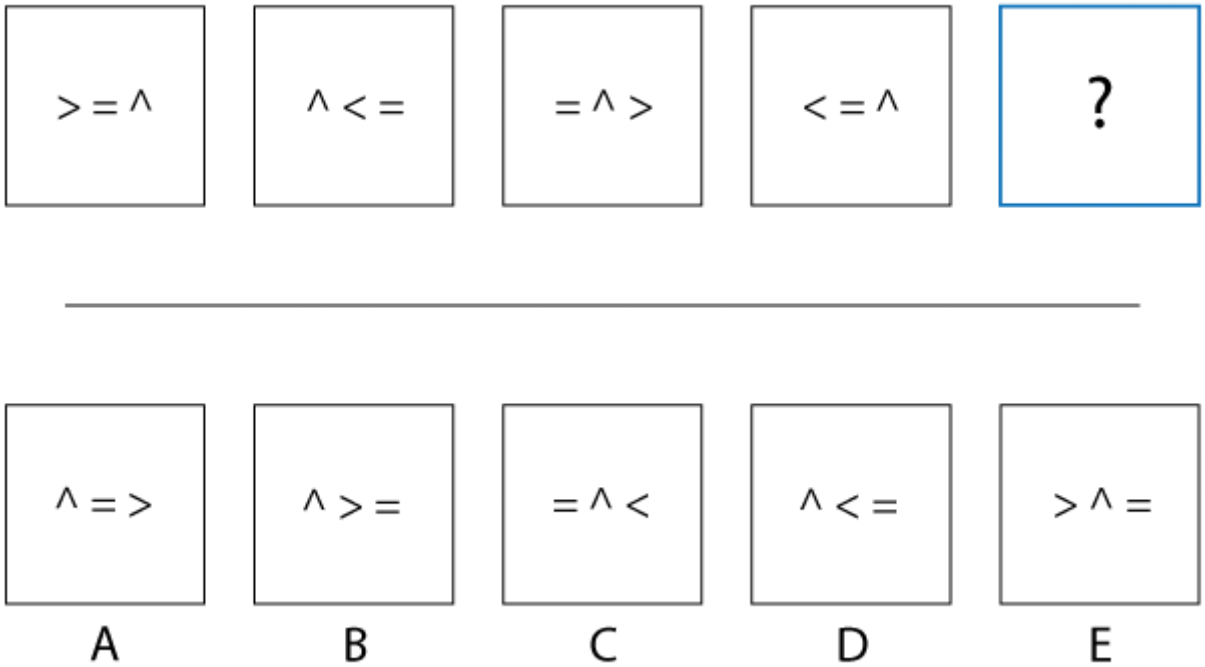


Q8 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The notches move down one place each time, then thye begin again on the next column.

Rule 2: The enlarged notch moves one place to the right each time, then once it reaches the end, begins again from the left.

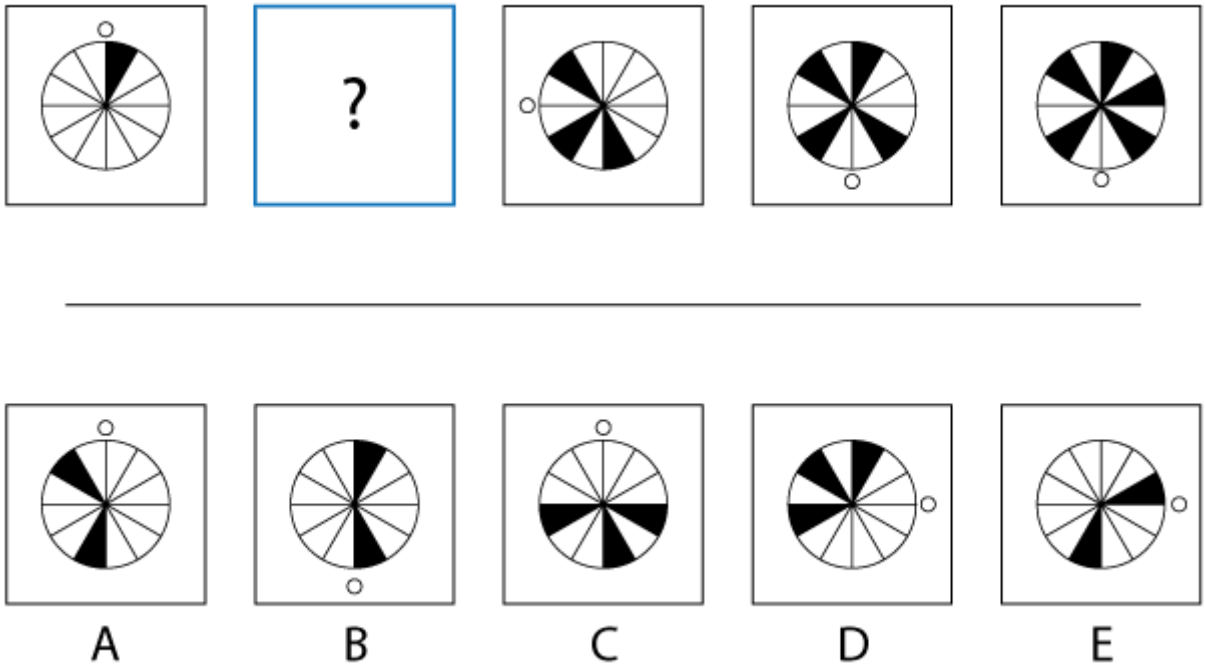


Q9 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The symbols move one place to the right each time.

Rule 2: The horizontal arrow alternates between pointing right (>) and left (<) each time.

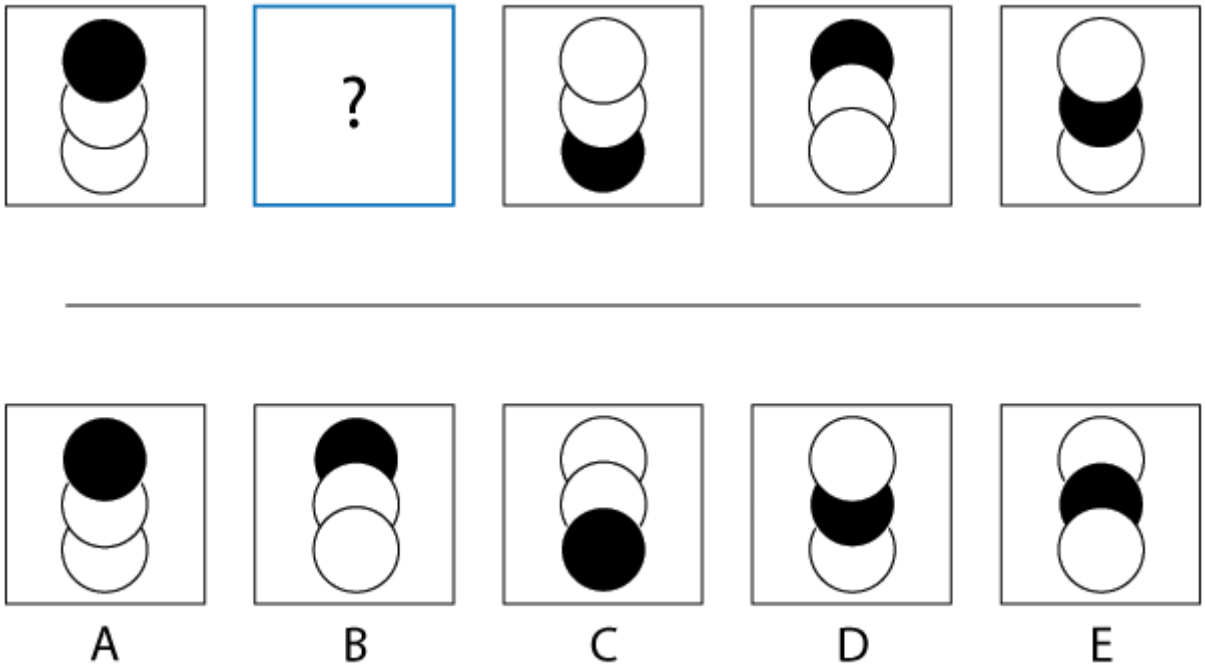


Q10 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of shaded segments increases by one each time.

Rule 2: The small circle moves clockwise one quarter of the way round the large circle, then two quarters, then three quarters and so on.

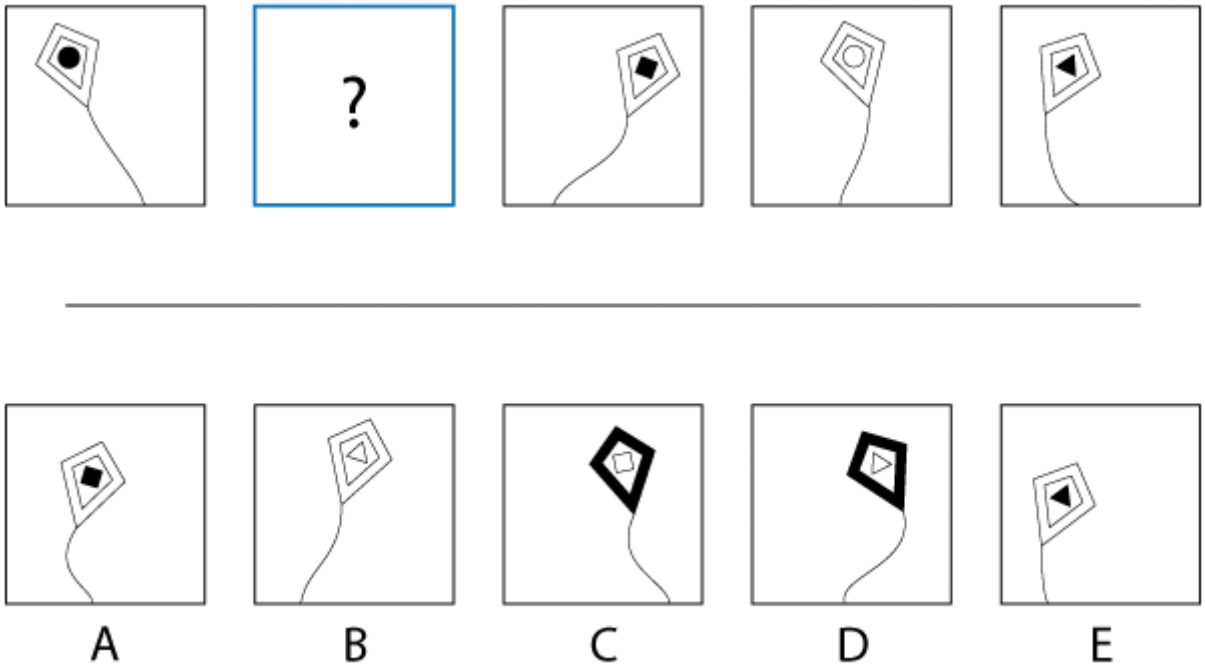


Q11 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The circle alternate between moving from foreground to background and vice versa.

Rule 2: The shaded circle moves down one place each time.



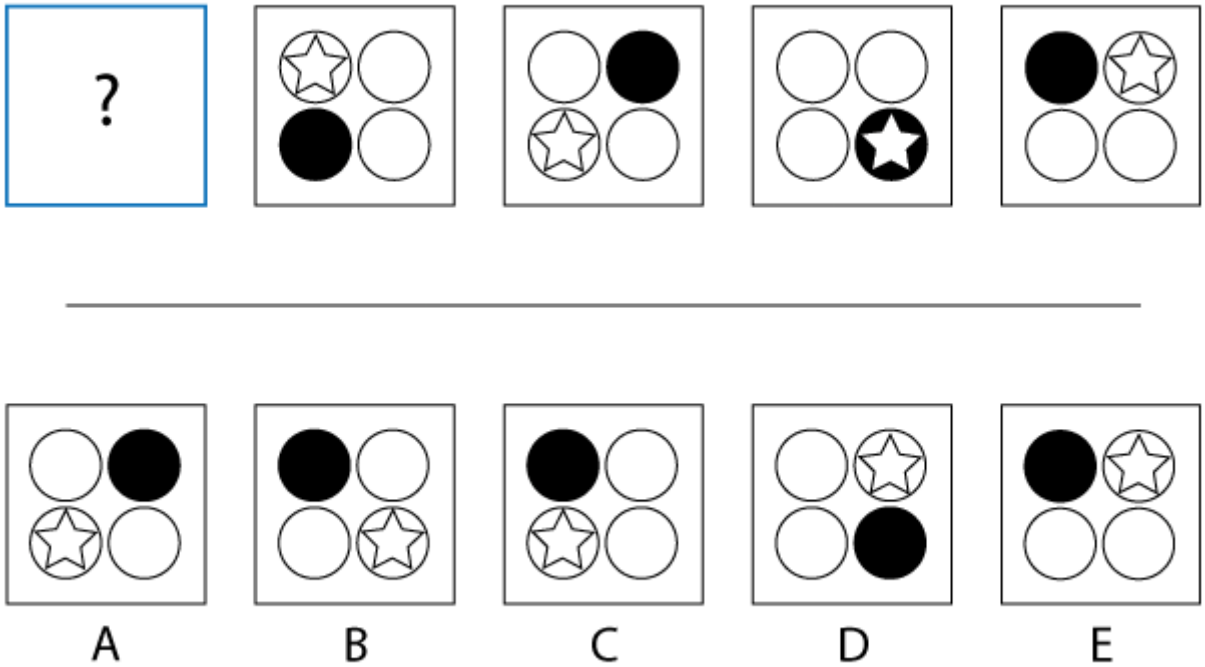
Q12 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shape in the kite alternates between circle, then triangle, then square, in that order. The pattern then repeats.

Rule 2: The shape in the kite alternates between shaded and unshaded.

Rule 3: The kite itself remains unshaded.

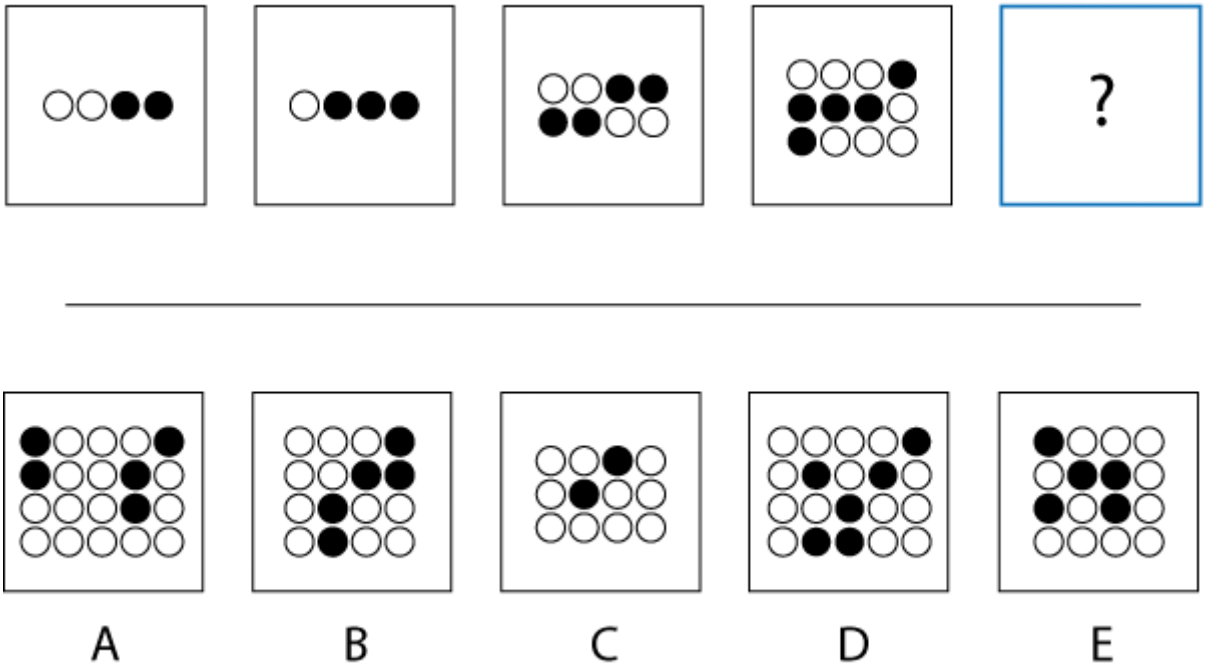


Q13 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The star moves one place anticlockwise each time.

Rule 2: The shaded circle moves down one place each time and then begins again on the next column.

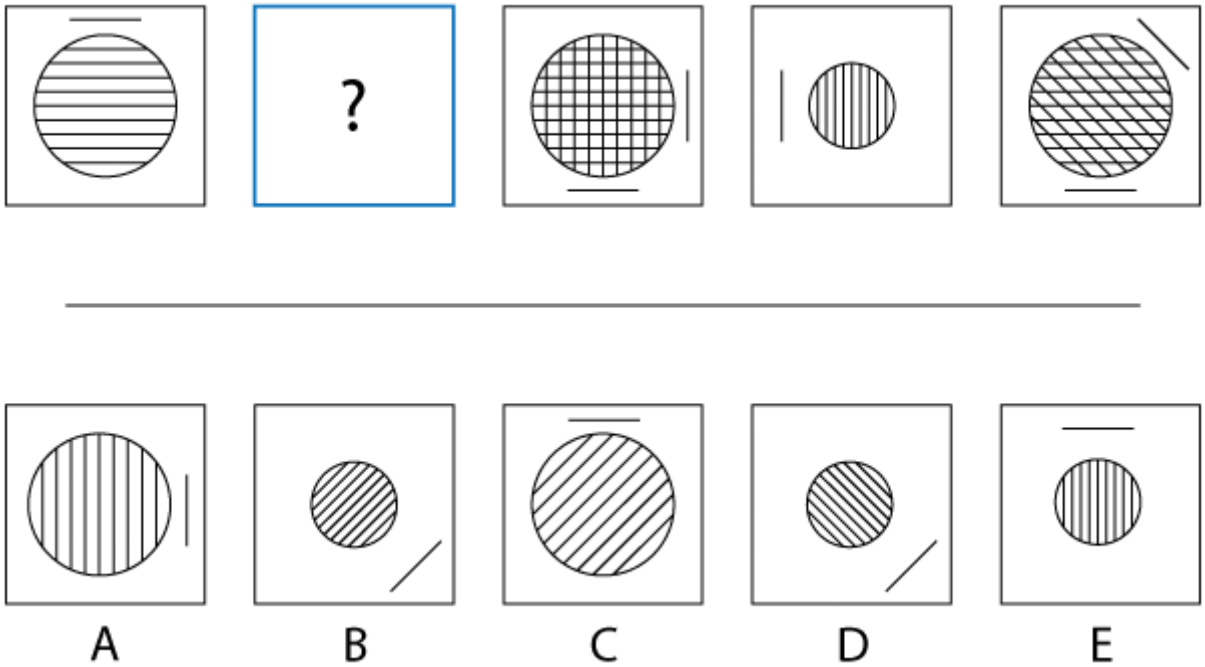


Q14 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of circles is equal to the total number of circles in the previous two boxes.

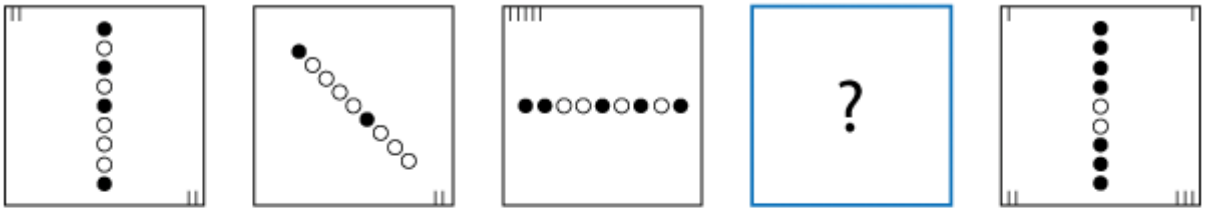
Rule 2: The total number of shaded circles increases by one each time.

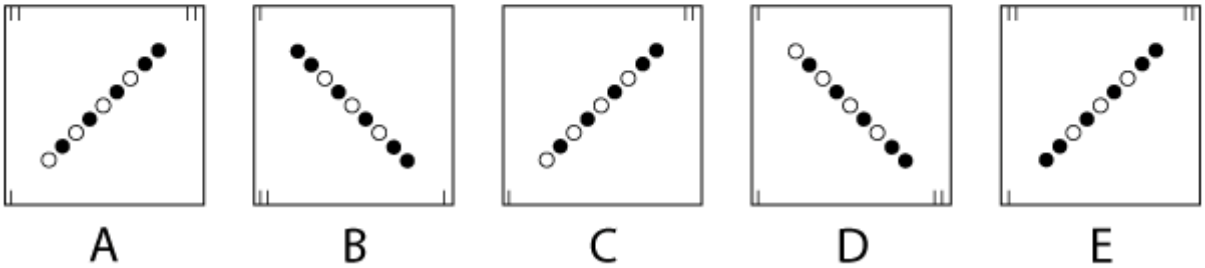


Q15 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1:The circle alternates between being large and small.
Rule 2:The lines inside the circle run parallel to the line(s) outside of the circle.



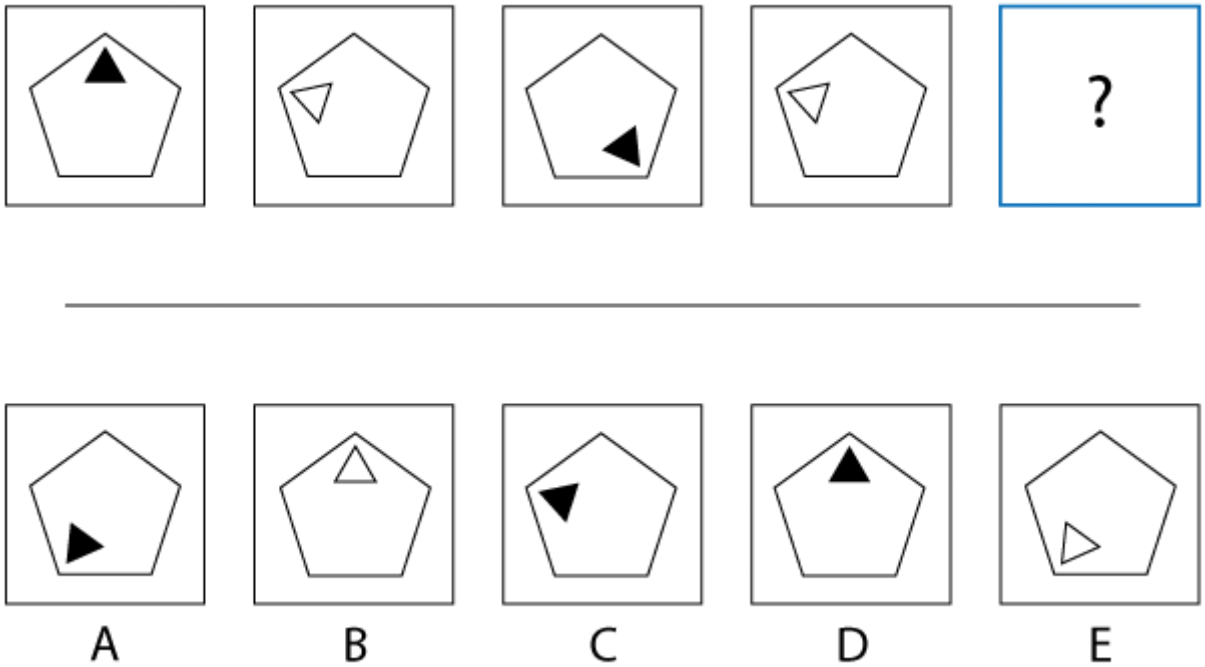


Q16 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1:The pattern of circles rotates 45˚ counterclockwise each time.

Rule 2:The total number of shaded circles is always equal to the total number of notches in that box.

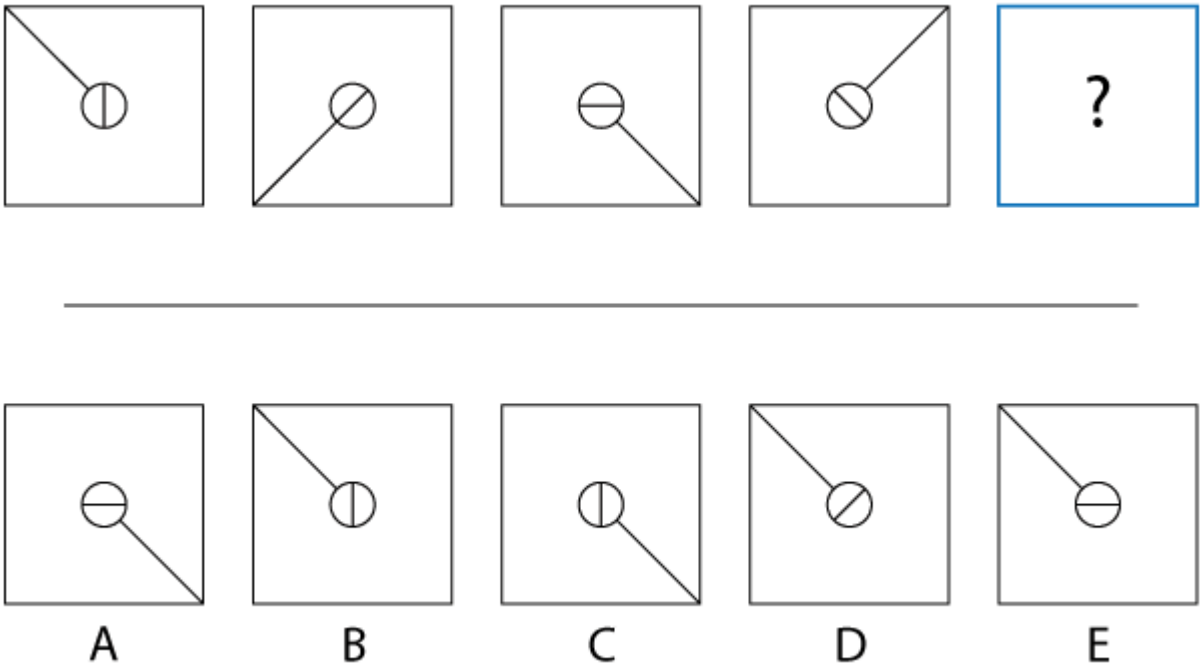


Q17 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The triangle rotates one place counterclockwise, then two places, then three places and so on.

Rule 2: The triangle alternates between shaded and unshaded.

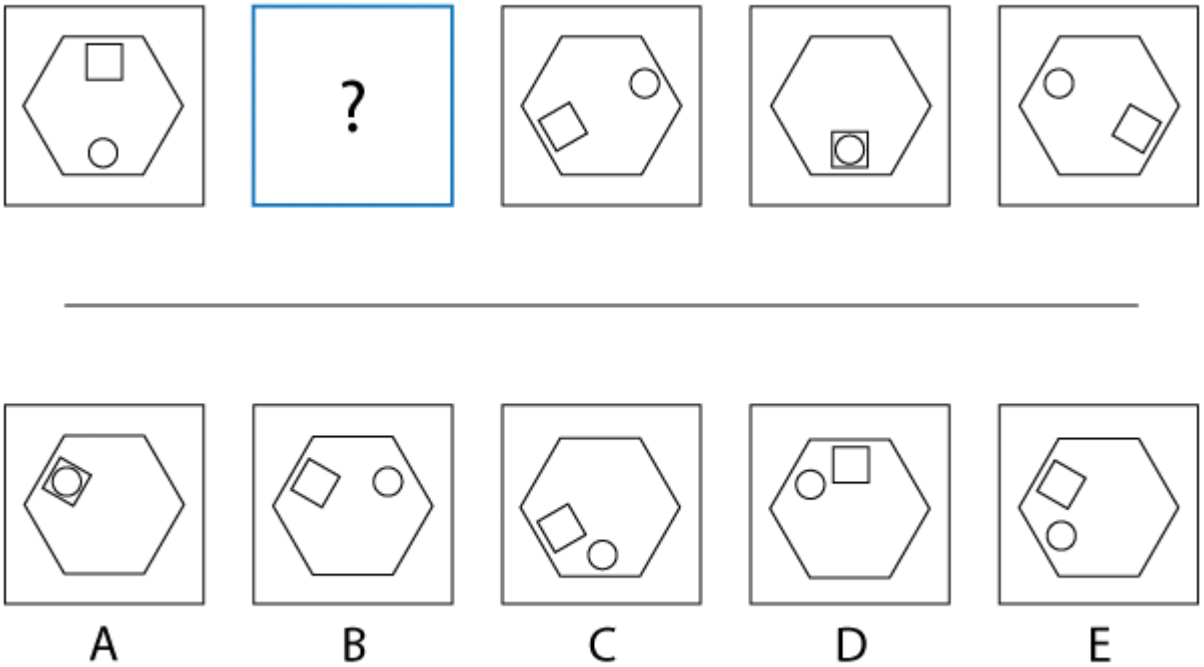


Q18 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The circle rotates 45˚ clockwise each time.

Rule 2: The large line moves counterclockwise to the next corner each time.

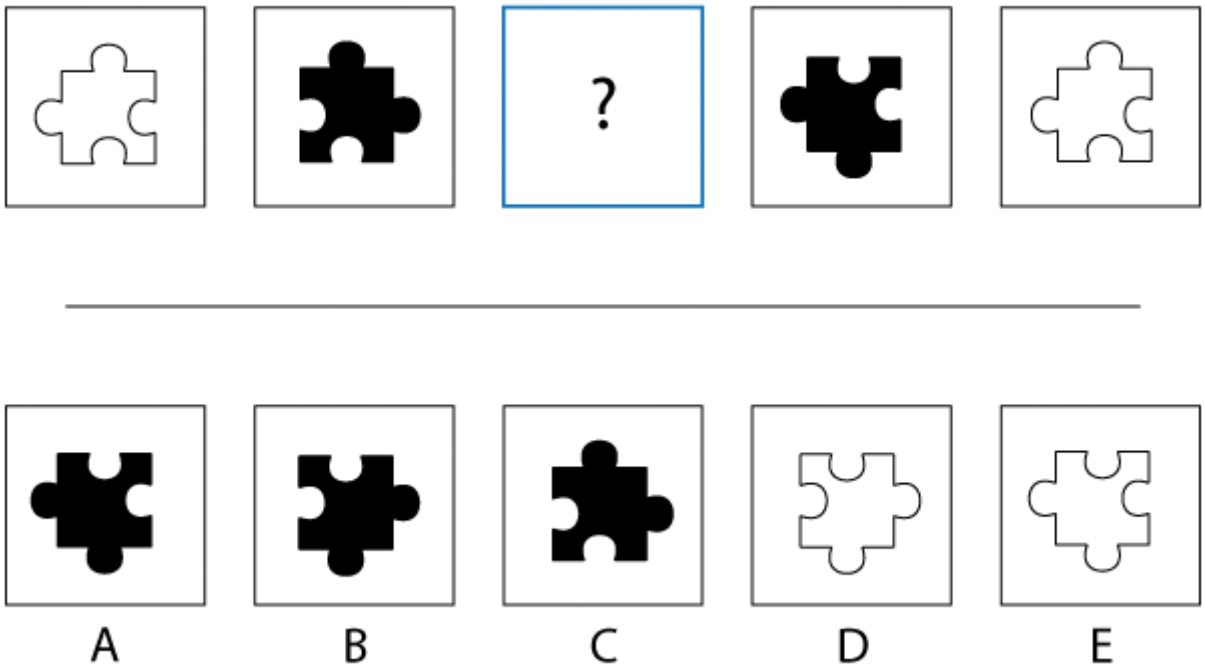


Q19 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The circle moves two places clockwise around the hexagon each time.

Rule 2: The square moves one place counterclockwise around the hexagon each time.

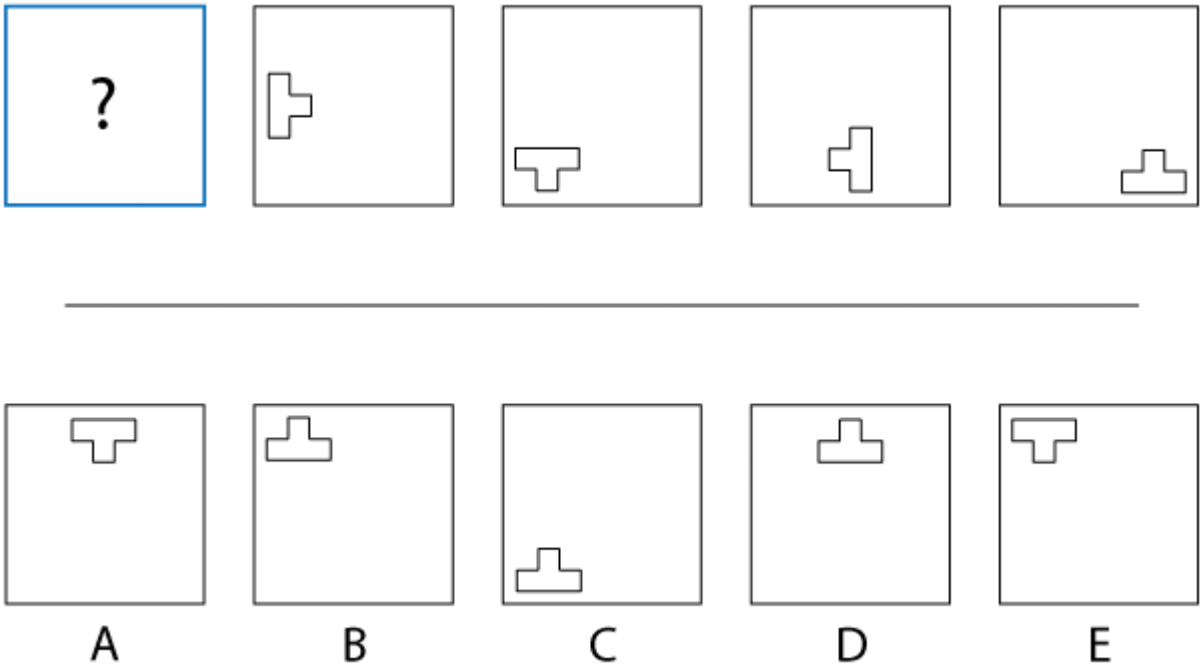


Q20 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The jigsaw piece alternates between shaded and unshaded.

Rule 2: The jigsaw piece rotates 90˚ clockwise each time.

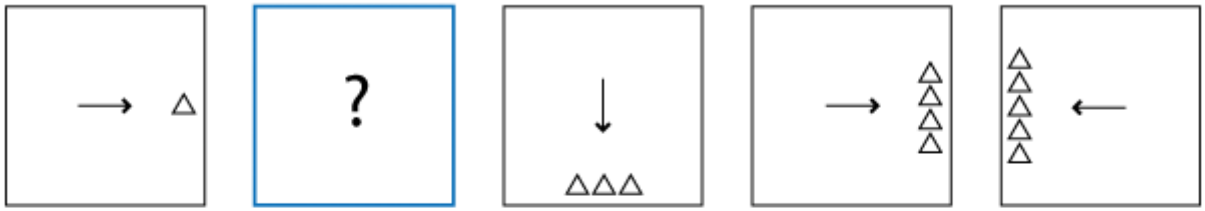


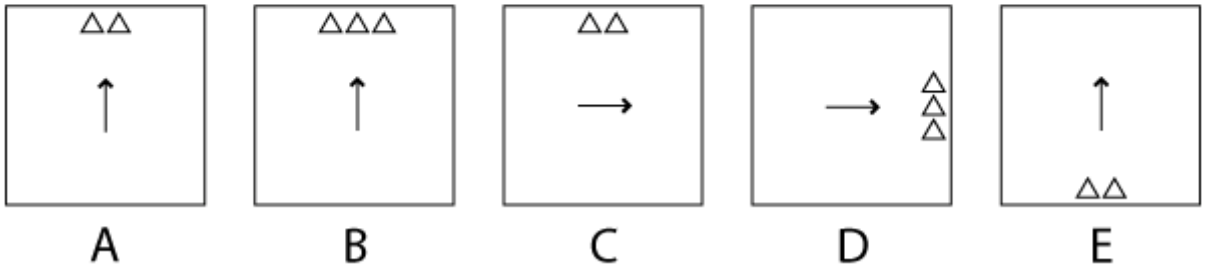
Q21 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shape moves one place counterclockwise around the box.

Rule 2: The symbol rotates 90˚ clockwise each time.



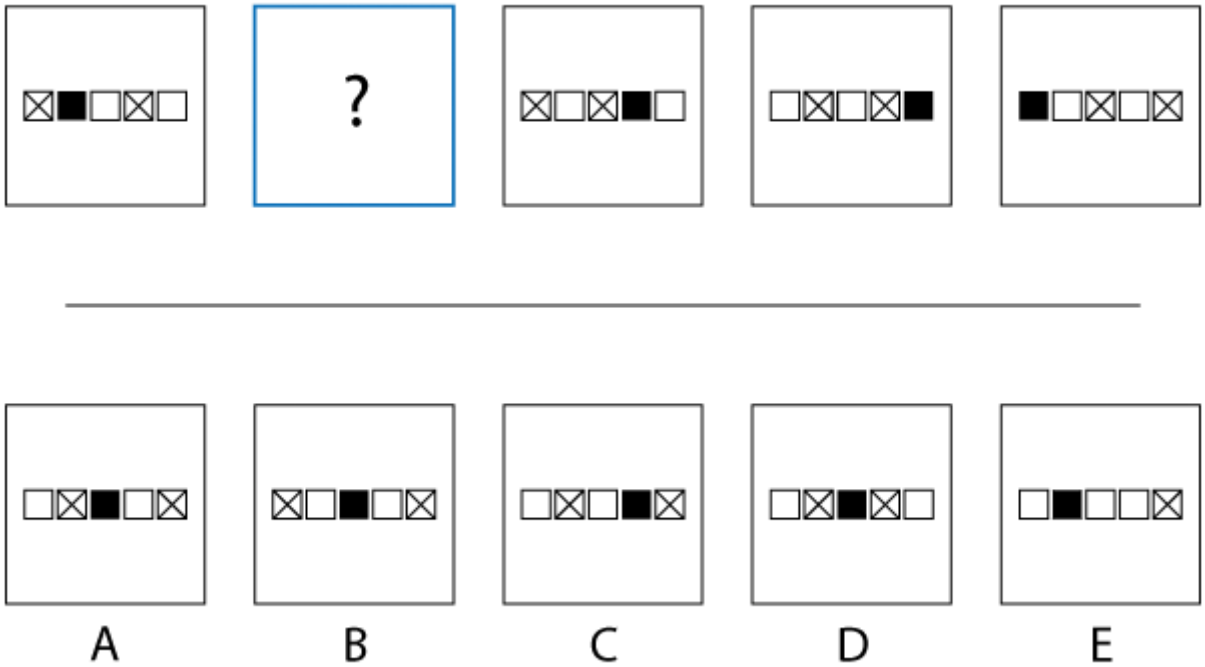


Q22 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of triangles increases by one each time.

Rule 2: The arrow indicates which side of the box the triangles are located.

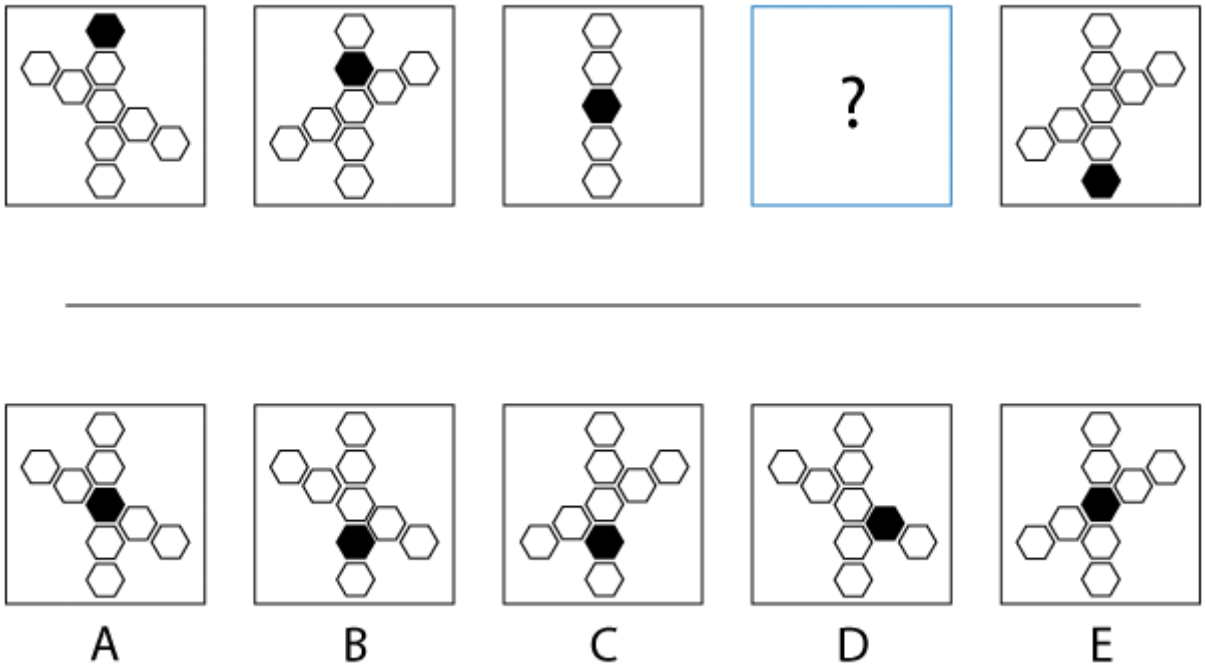


Q23 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shaded square moves one place to the right each time.

Rule 2: The two crossed squares move one place to the right each time.

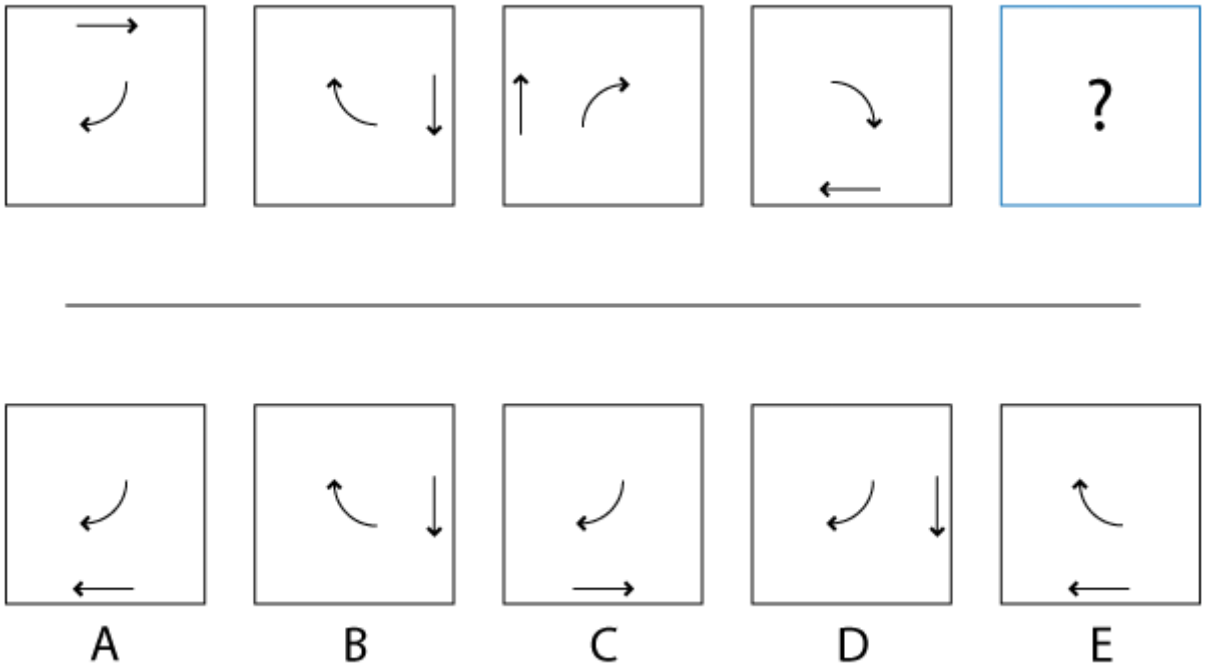


Q24 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The angled row of hexagons rotates one place counterclockwise around the vertical row of hexagons each time.

Rule 2: The shaded hexagon moves down one place each time.

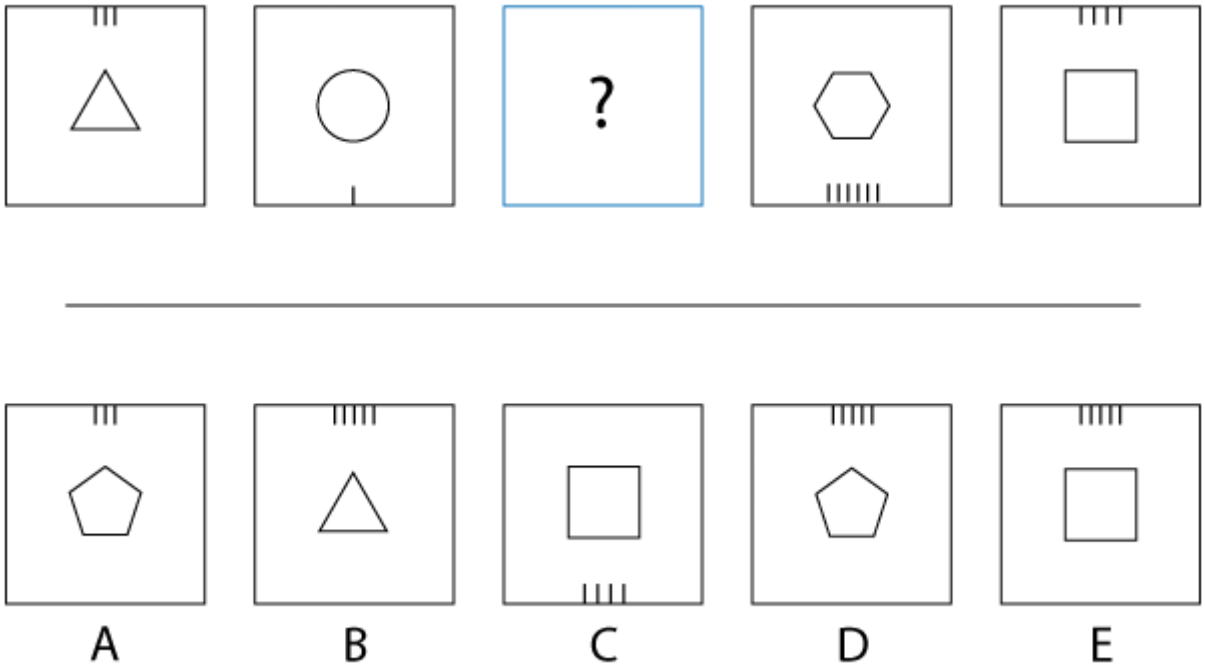


Q25 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The central arrow rotates 90˚ clockwise each time.

Rule 2: The straight arrow moves one place, then two places, then three places clockwise and so on around the box.

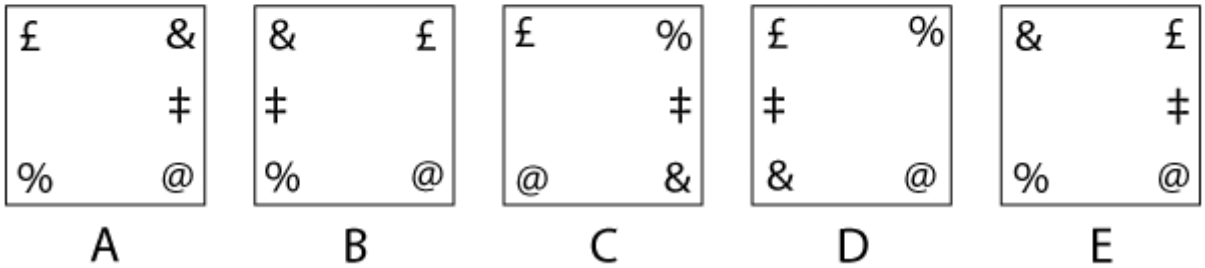


Q26 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The notches alternate between being at the top and the bottom of the box.

Rule 2: The total number of notches is equal to the total number of edges on the shape in that box.

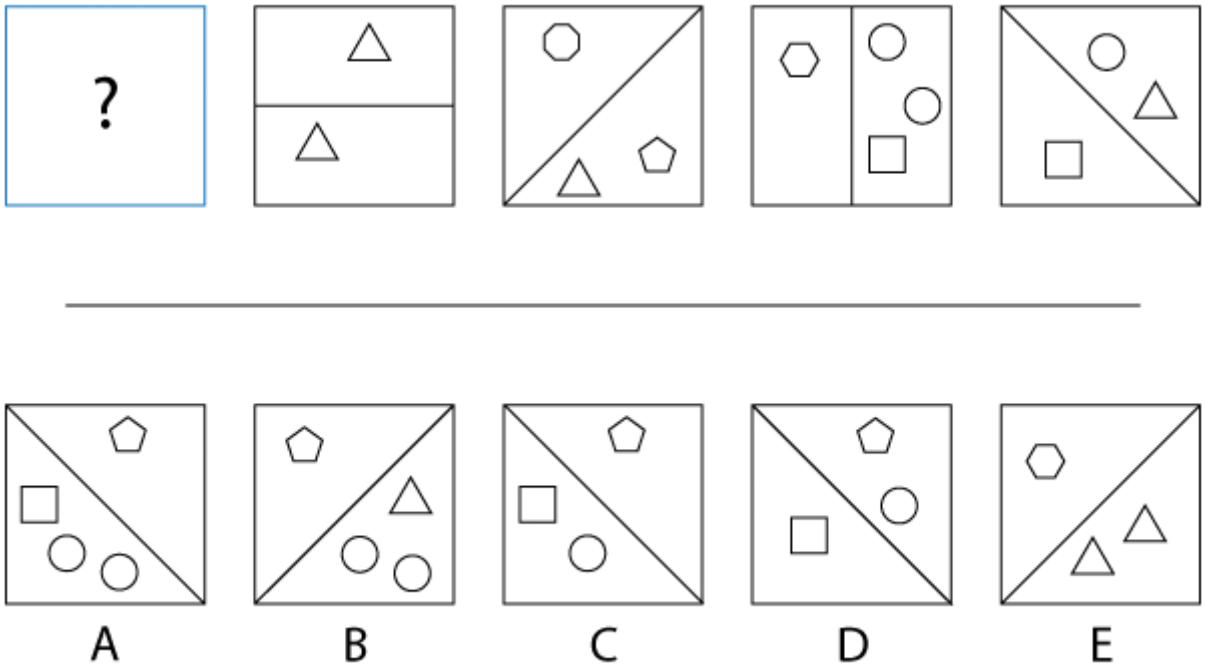


Q27 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The '‡' symbol alternates between the right hand and left hand side of the box.

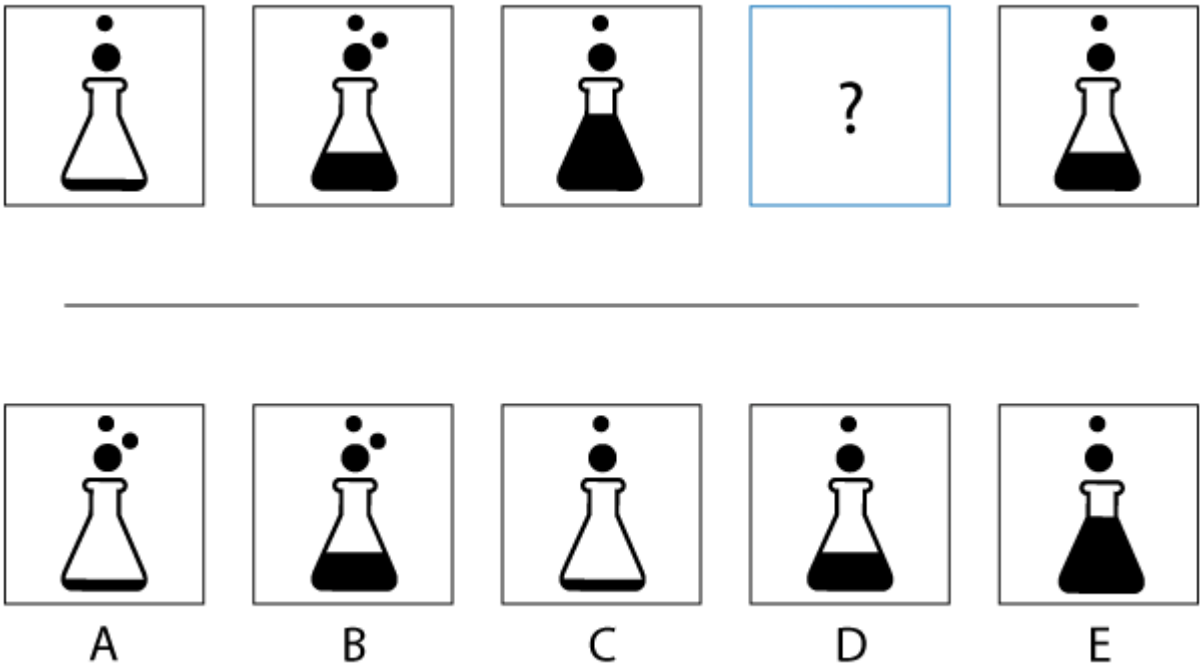
Rule 2: The other shapes moves one place clockwise to the next corner each time.



Q28 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The line in the box rotates 45˚ counterclockwise each time.
Rule 2: The total number of edges on the shapes in each half of the box is the same.

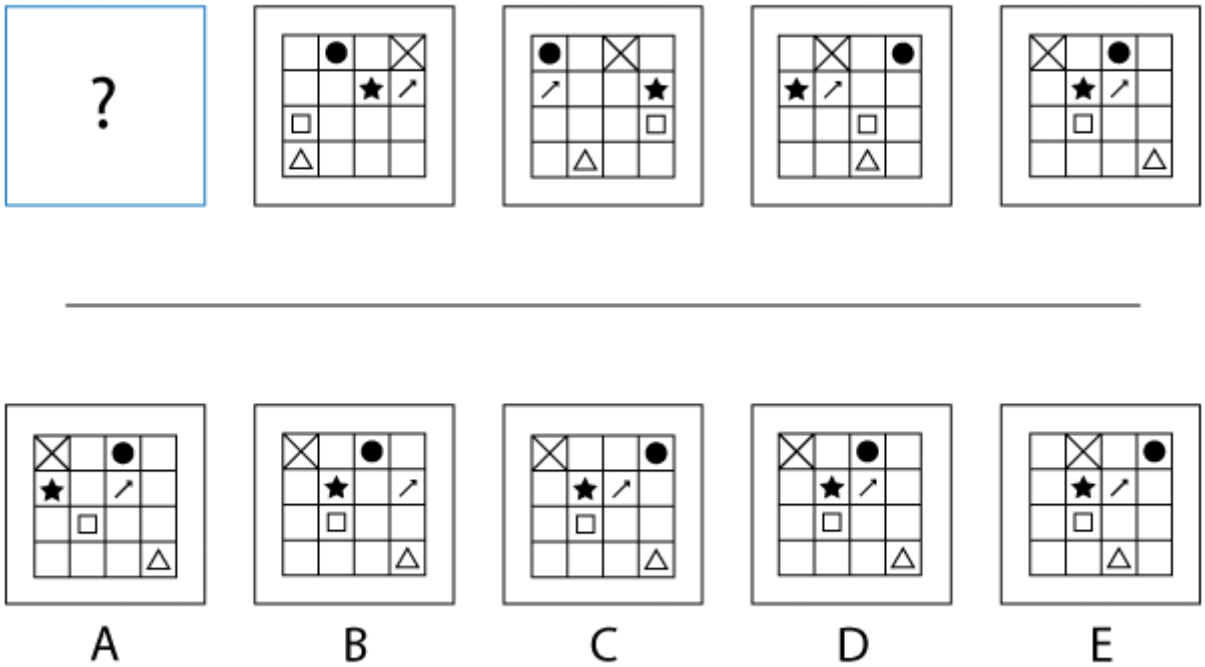


Q29 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The flask goes from empty to half full to full, and then the pattern repeats.

Rule 2: The total number of bubble alternates between two and three.



Q30 What replaces the question mark?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: Each shape in the first and third rows moves one place to the left each time.

Rule 2: Each shape in the second and fourth rows moves one place to the right each time.

-- End of Test --

ABSTRACT REASONING TEST 6

Instructions

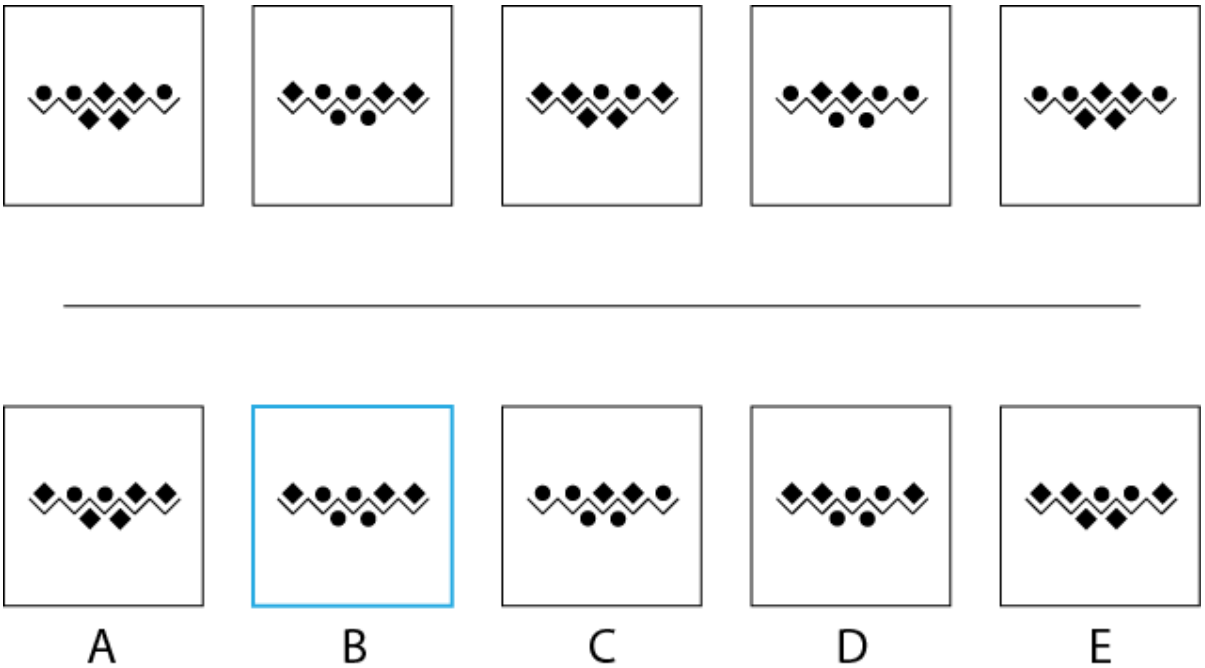
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

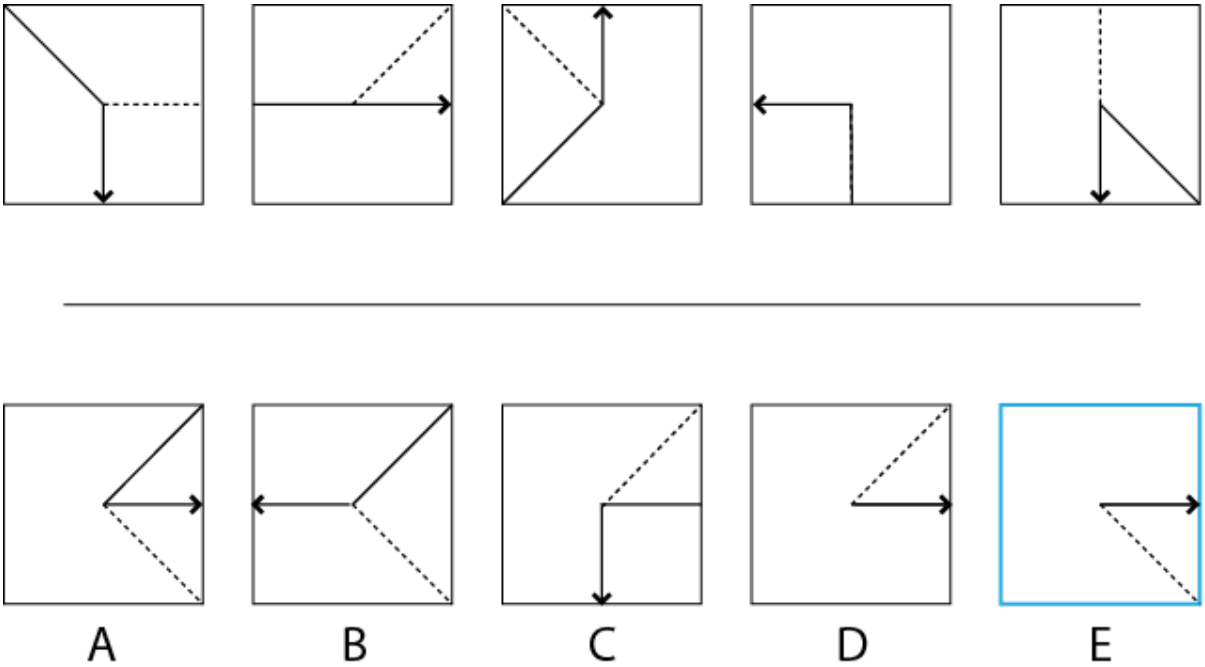
Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**



Q1 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

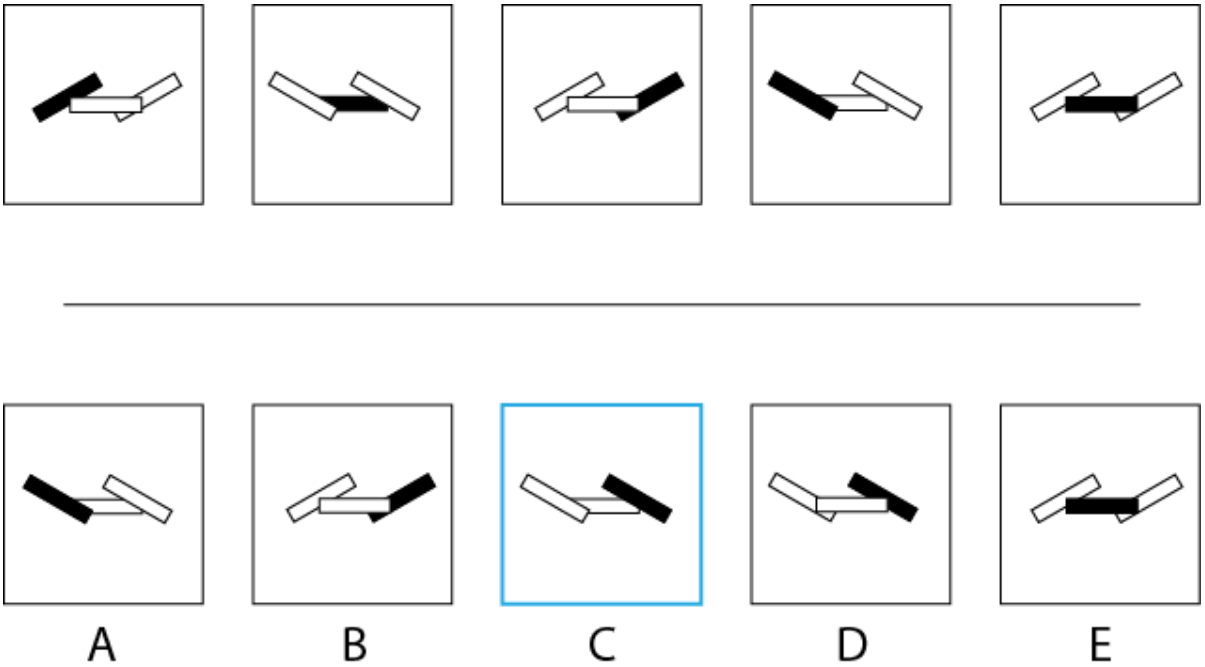
Rule 1: The shapes on the top row follow the order: circle, circle, square, square and then repeats.
Rule 2: The shapes on the top row move one place to the right each time.
Rule 3: The shapes on the bottom row alternate between circle and square.



Q2 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

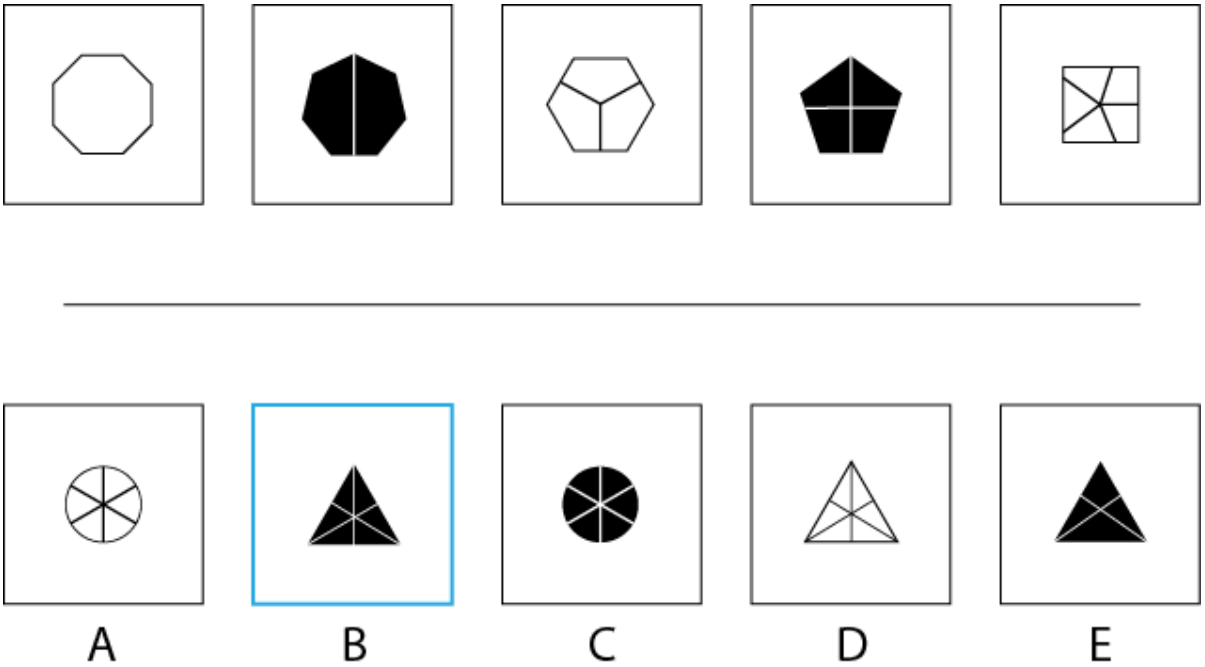
Rule 1: The solid line moves one place counterclockwise each time.
Rule 2: The arrow line moves two places counterclockwise each time.
Rule 3: The dotted line moves counterclockwise one place, then two places, then 3 places and so on.



Q3 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

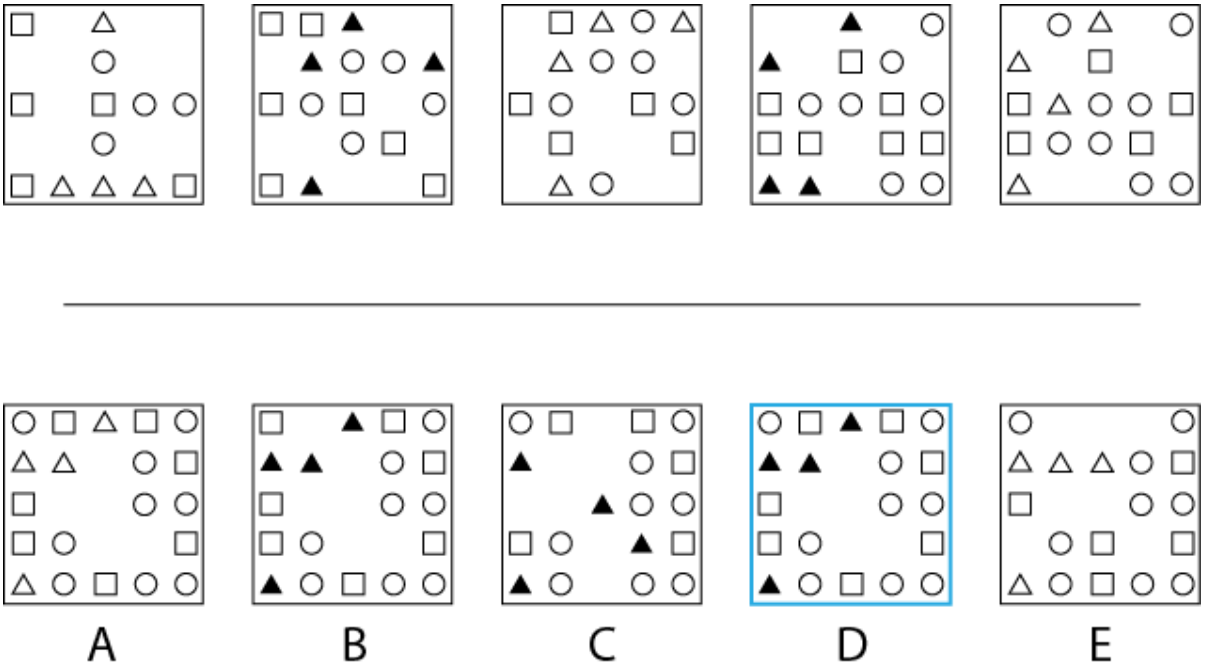
Rule 1: The left and right hand rectangles alternate between pointing NE-SW and NW-SE each time.
Rule 2: The middle rectangle alternates between the foreground and the background.
Rule 3: The shaded block moves one place to the right each time.



Q4 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

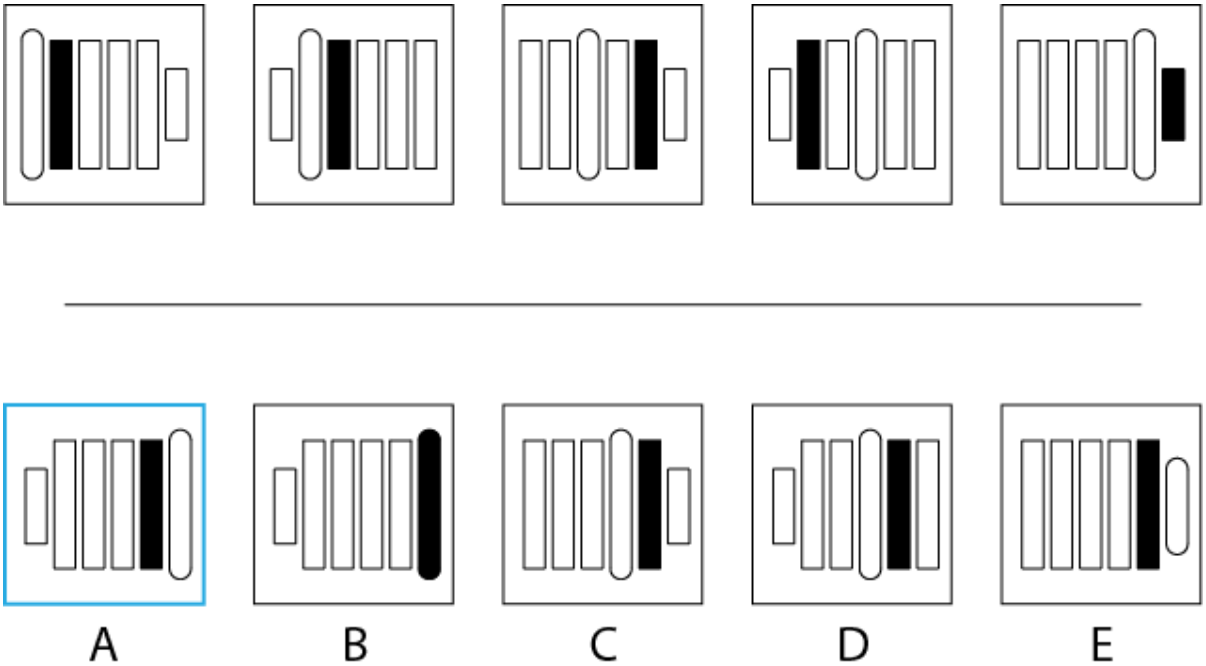
Rule 1: The total number of edges on the shape decreases by one each time.
Rule 2: The total number of segments in each shape increases by one each time.
Rule 3: The shape alternates between shaded and unshaded.



Q5 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

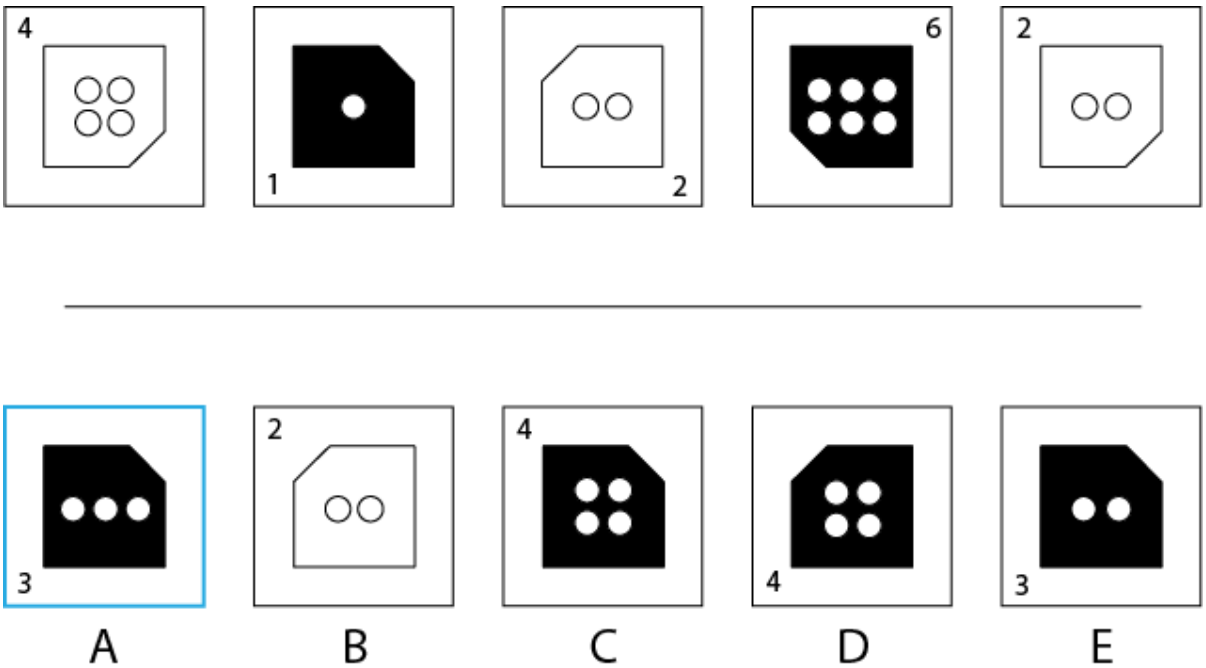
Rule 1: The total number of circles increases by one each time.
Rule 2: The triangles alternate between shaded and unshaded.
Rule 3: The total number of squares alternates between 5 and 7.



Q6 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

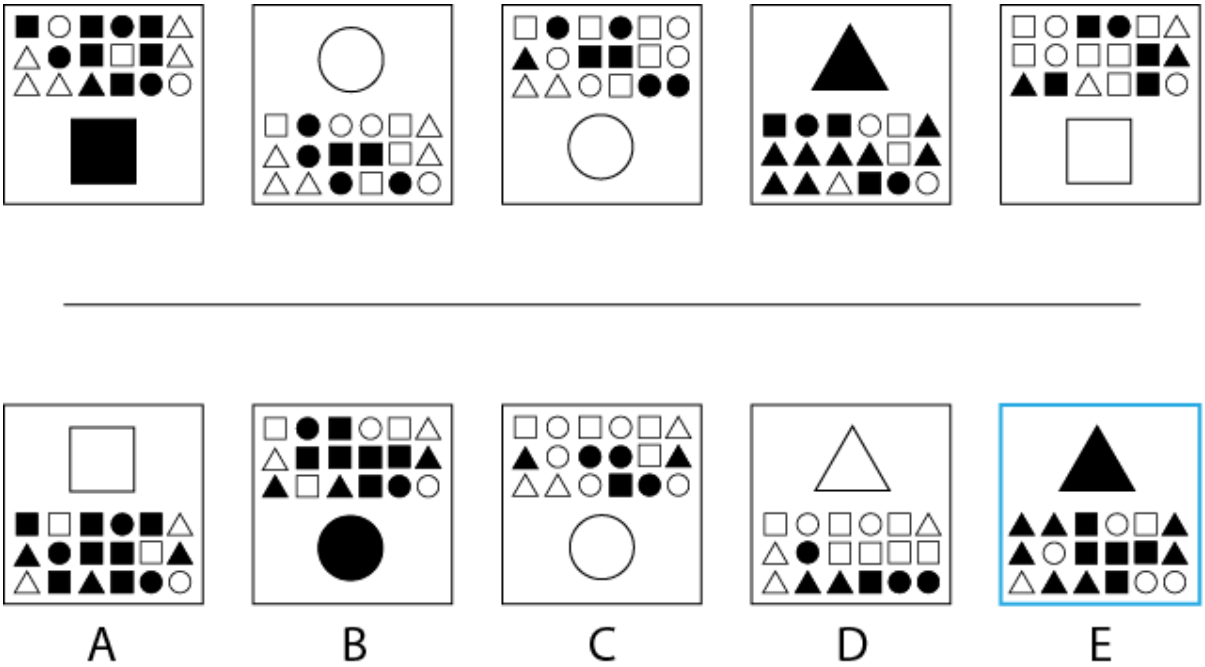
Rule 1: The shaded bar moves one place to the right, then two places, then three places and so on.
Rule 2: The rounded corners move one place to the right each time.
Rule 3: The shortened bar alternates between the left and right hand side.



Q7 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

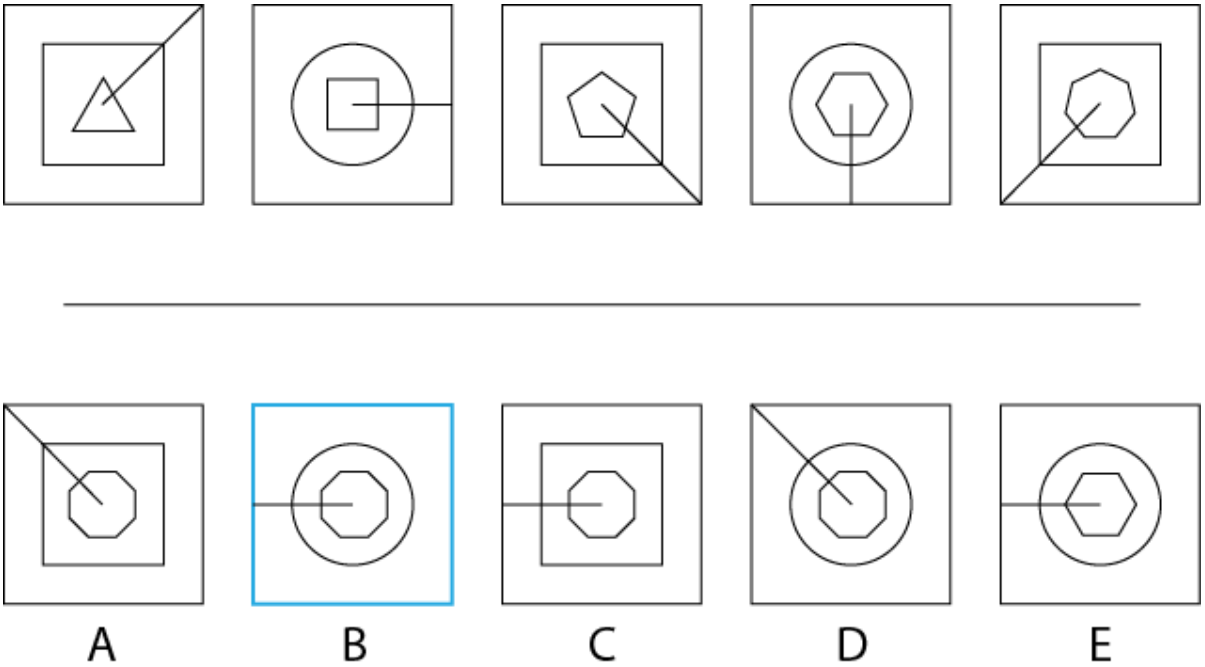
Rule 1: The missing edge of the square moves one place counterclockwise each time.
Rule 2: The number moves one place counterclockwise each time, and indicate how many circles are in the square.
Rule 3: The square alternates between shaded and unshaded.



Q8 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

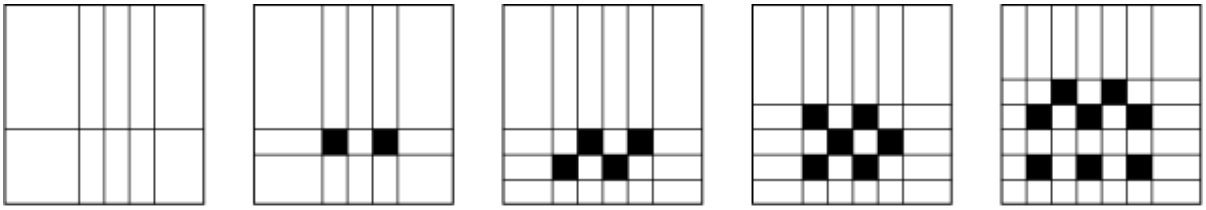
Rule 1: The large shape alternates between being at the top and the bottom of the box.
Rule 2: The large shape is the same as which ever small shape is the most frequent.
Rule 3: If more small shapes are shaded than unshaded, then the large shape is also shaded, and vice versa.

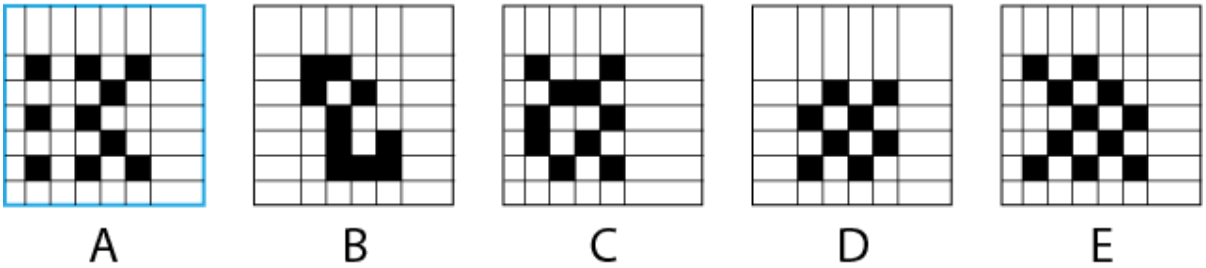


Q9 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The large shape alternates between circle and square.
Rule 2: The total number of edges on the the small shape increases by one each time.
Rule 3: The line rotates one place clockwise each time.

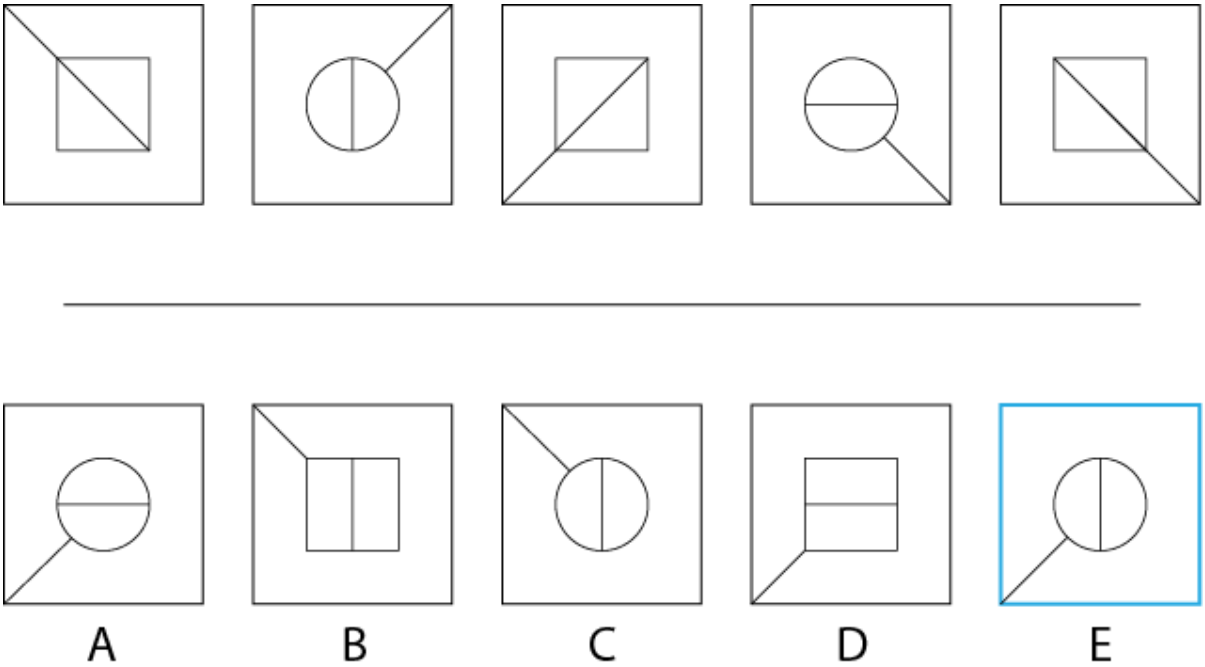




Q10 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

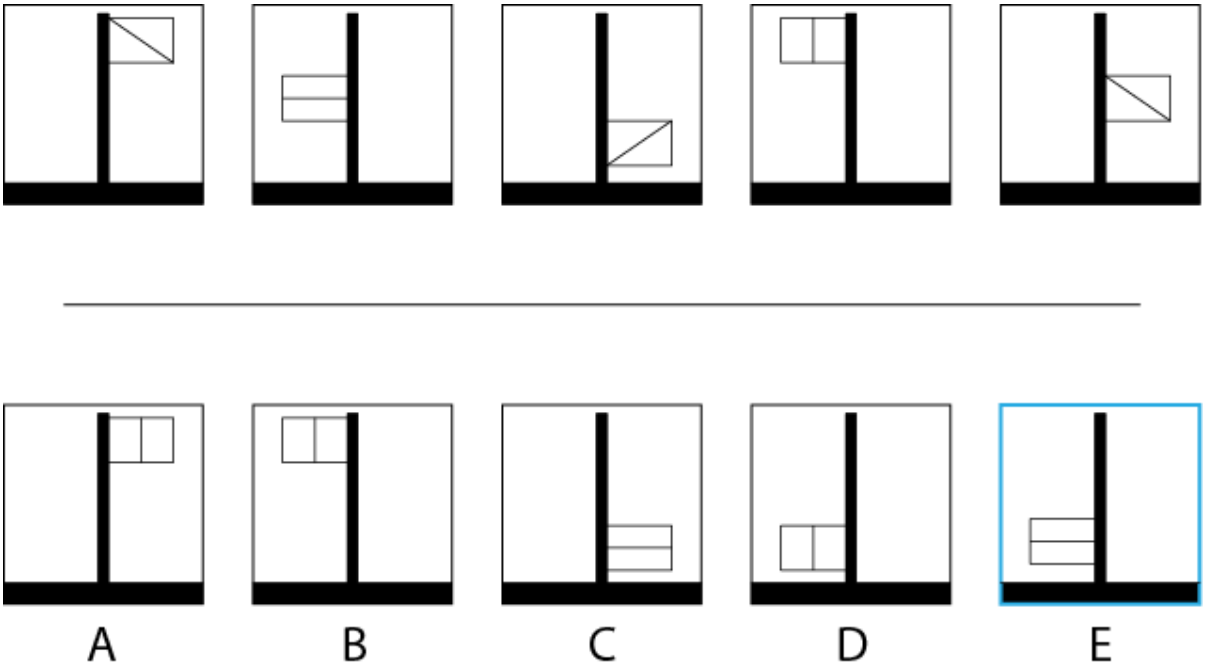
Rule 1: The total number of vertical lines increases by one every two boxes.
Rule 2: The total number of horizontal lines increases by one each time.
Rule 3: The total number of shaded boxes increases by two each time.



Q11 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

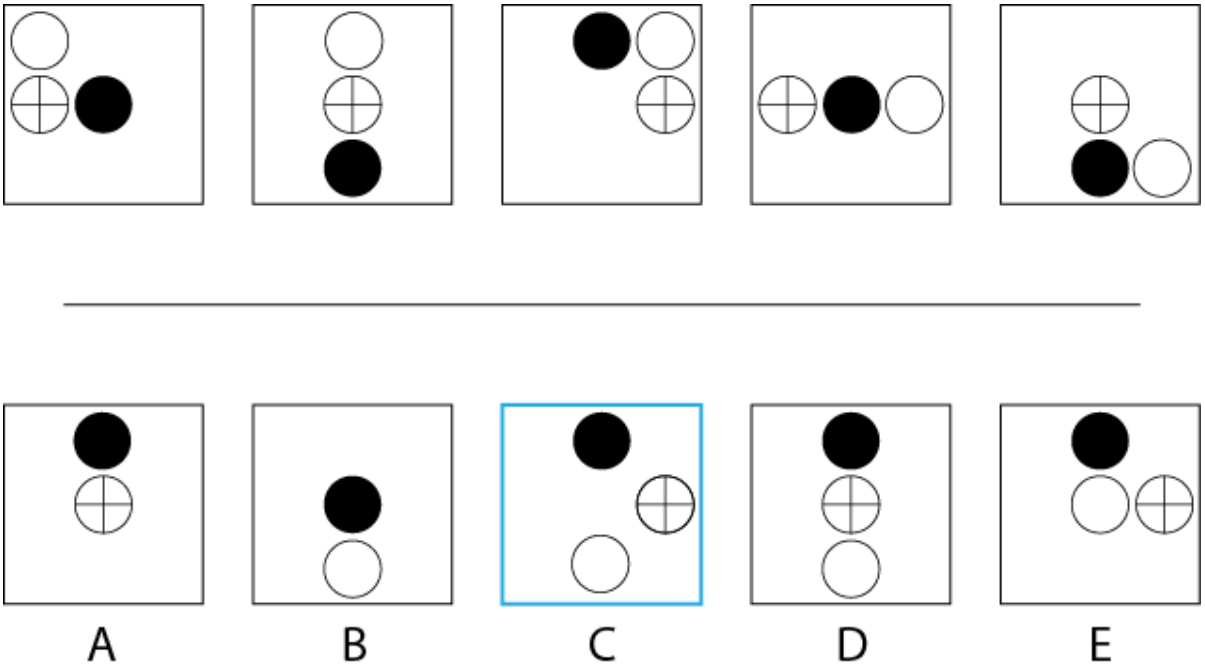
Rule 1: The shape alternates between a circle and square.
Rule 2: The line outside of the shape moves clockwise one place to the next corner, then two places, then three places and so on.
Rule 3: The line inside the shape rotates 45˚ clockwise each time.



Q12 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

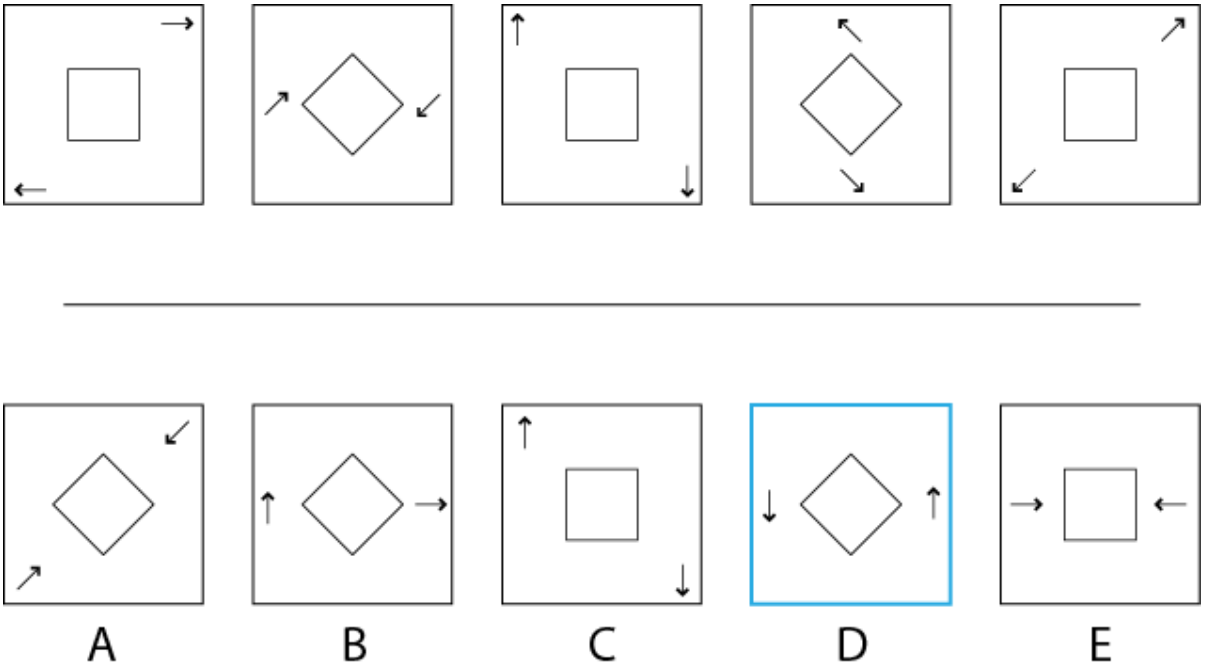
Rule 1: The flag moves down one place each time, and then begins again from the top.
Rule 2: The flag alternates between pointing left and right.
Rule 3: The line in the flag rotates 45˚ counterclockwise each time.



Q13 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

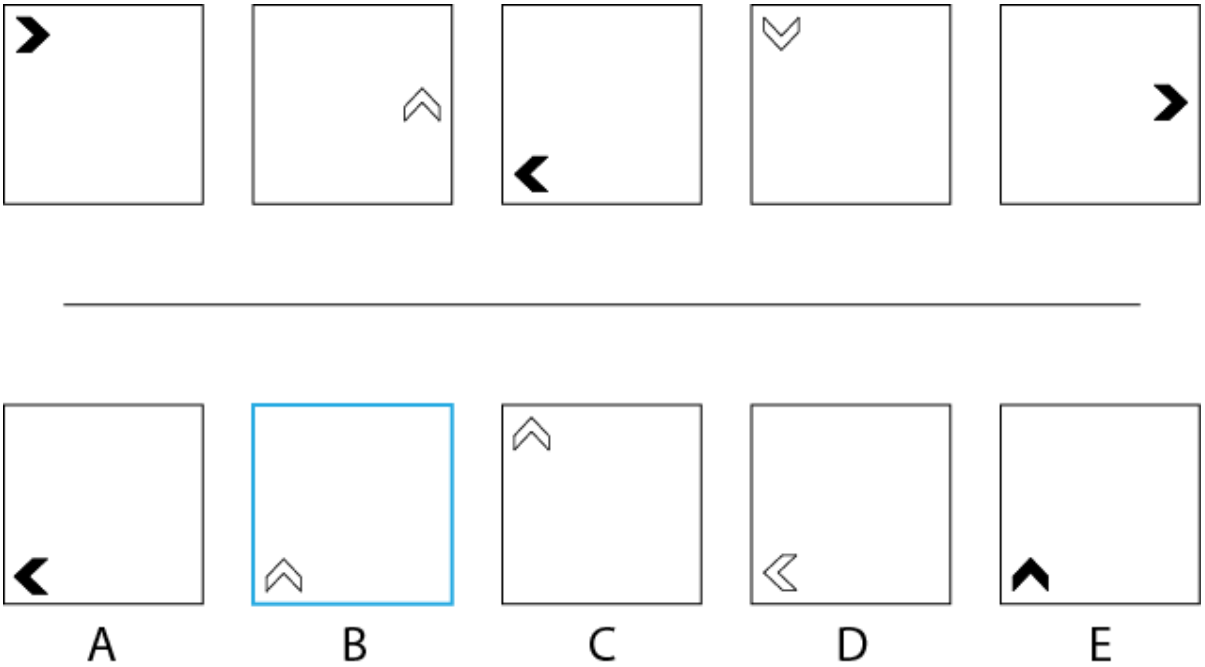
Rule 1: The shaded circle moves down one place each time, and then begins again from the top.
Rule 2: The crossed circle moves one place to the right each time and then begins again from the left.
Rule 3: The blank circle moves one place clockwise each time.



Q14 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

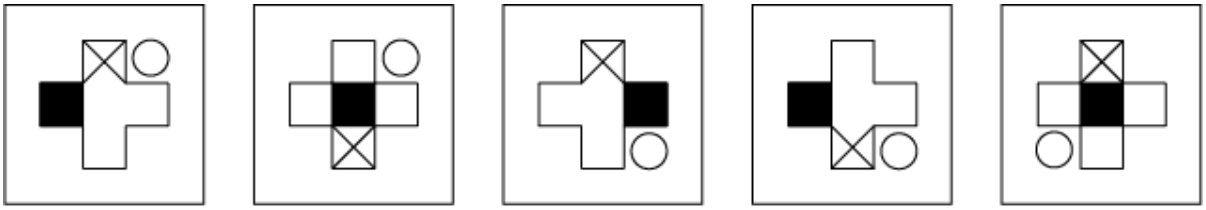
Rule 1: The square rotates 45˚ each time.
Rule 2: Both arrows move one place clockwise around the box each time.
Rule 3: The arrows always point in opposite directions.

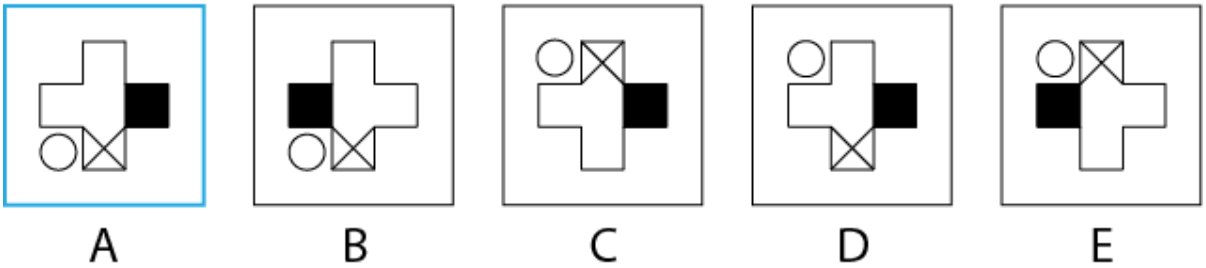


Q15 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shape rotates 90˚ counterclockwise each time.
Rule 2: The shape alternates between shaded and unshaded.
Rule 3: The shape moves from top left, to middle right, to bottom left and then repeats.





Q16 What comes next in the sequence?

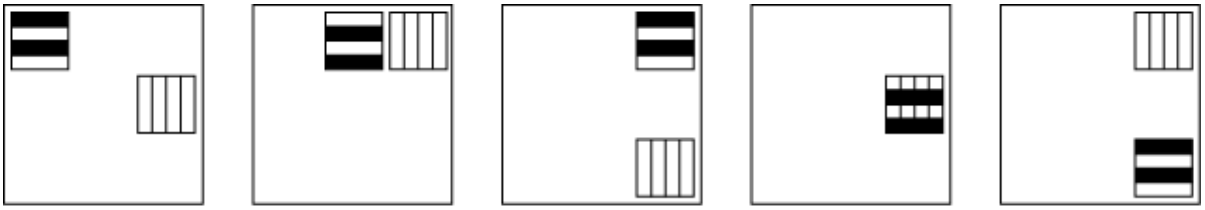
(A) A
(B) B
(C) C
(D) D
(E) E

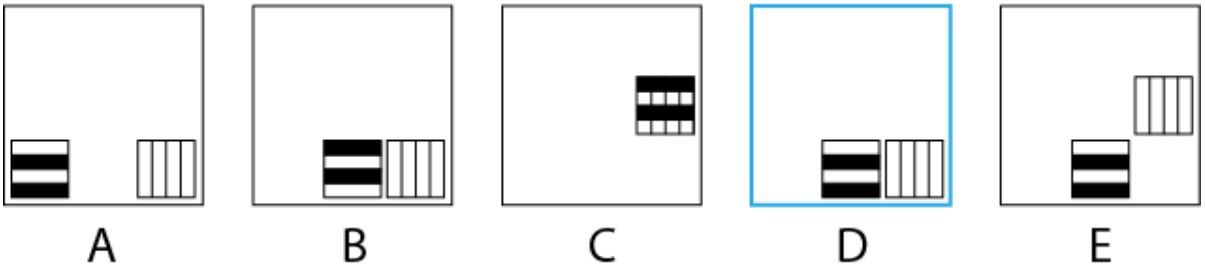
Rule 1: The shaded block moves one place to the right each time and then begins again from the left.
Rule 2: The cross alternates between the top and bottom of the shape.
Rule 3: The circle moves one place clockwise every two boxes.

Q17 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The outer cirlce rotates 45˚counterclockwise each time.
Rule 2: The shape inside the circle rotates 90˚ counterclockwise each time.
Rule 3: The shape inside the circle alternates between shaded and unshaded.

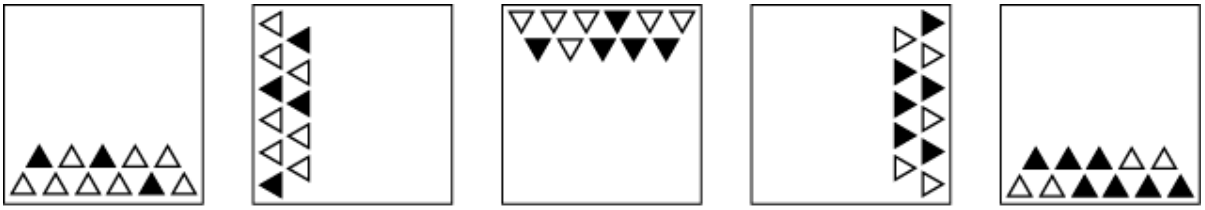


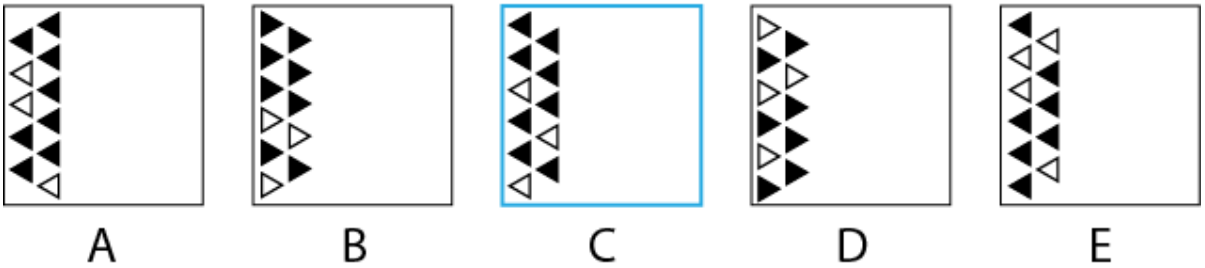


Q18 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The horizontally barred square moves one place clockwise around the box each time.
Rule 2: The bars on the horizontally barred square alternate between shaded and unshaded.
Rule 3: The vertically barred square moves up one place each time, then begins again from the bottom.

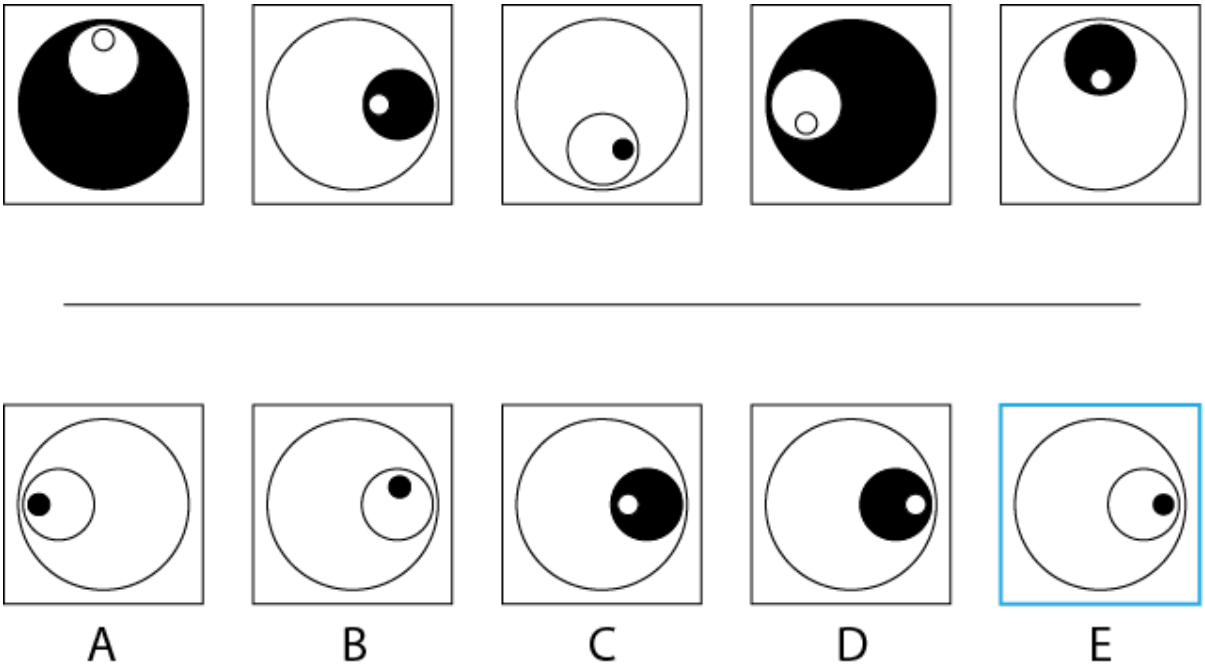




Q19 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

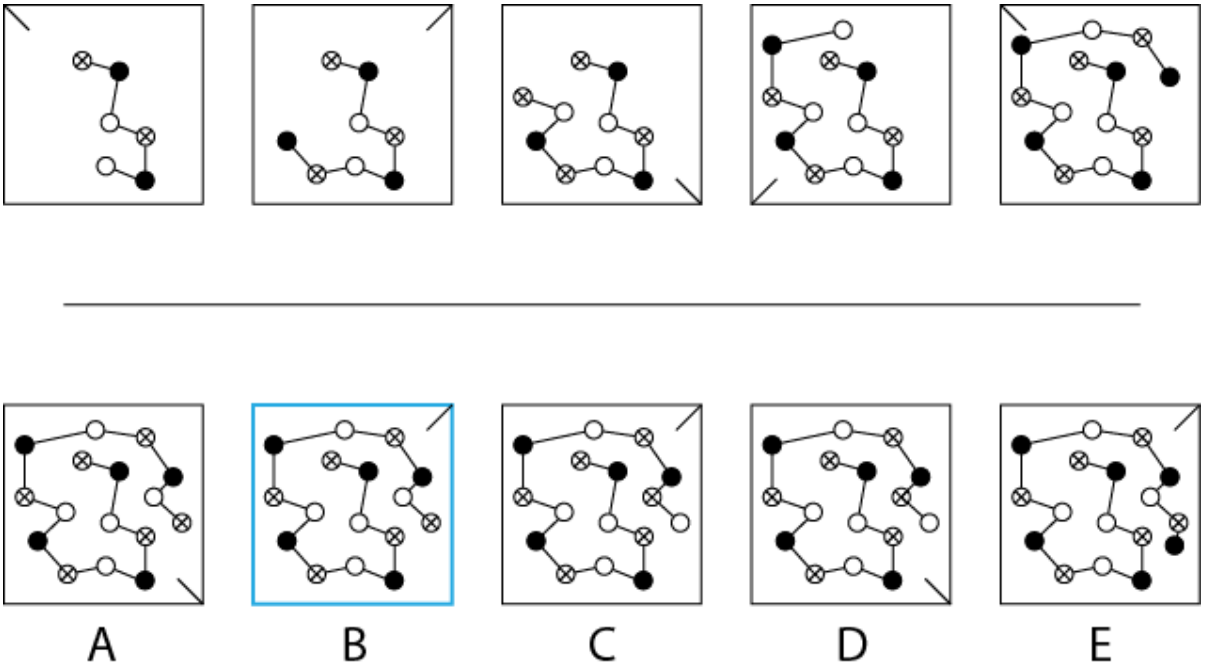
Rule 1: The rows of triangles move clockwise to the next edge of the box each time. The row of six triangles is always closest to the edge.
Rule 2: The triangles alternate between pointing to the centre of the box, and pointing away from the box.
Rule 3: The total number of shaded triangles increases by one each time.



Q20 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

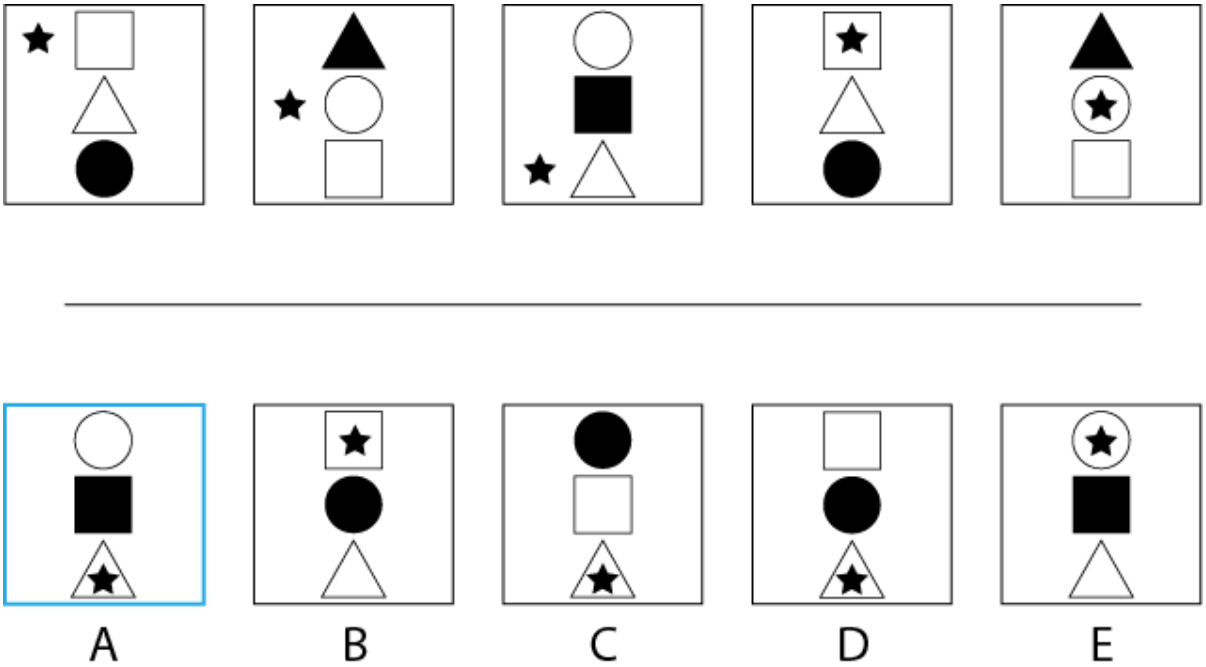
Rule 1: The small circle rotates counterclockwise one place, then two places, then three places and so on.
Rule 2: The middle circle moves one place clockwise around the large circle.
Rule 3: The shading alternates between the large, middle and small circle, in that order, and then repeats.



Q21 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

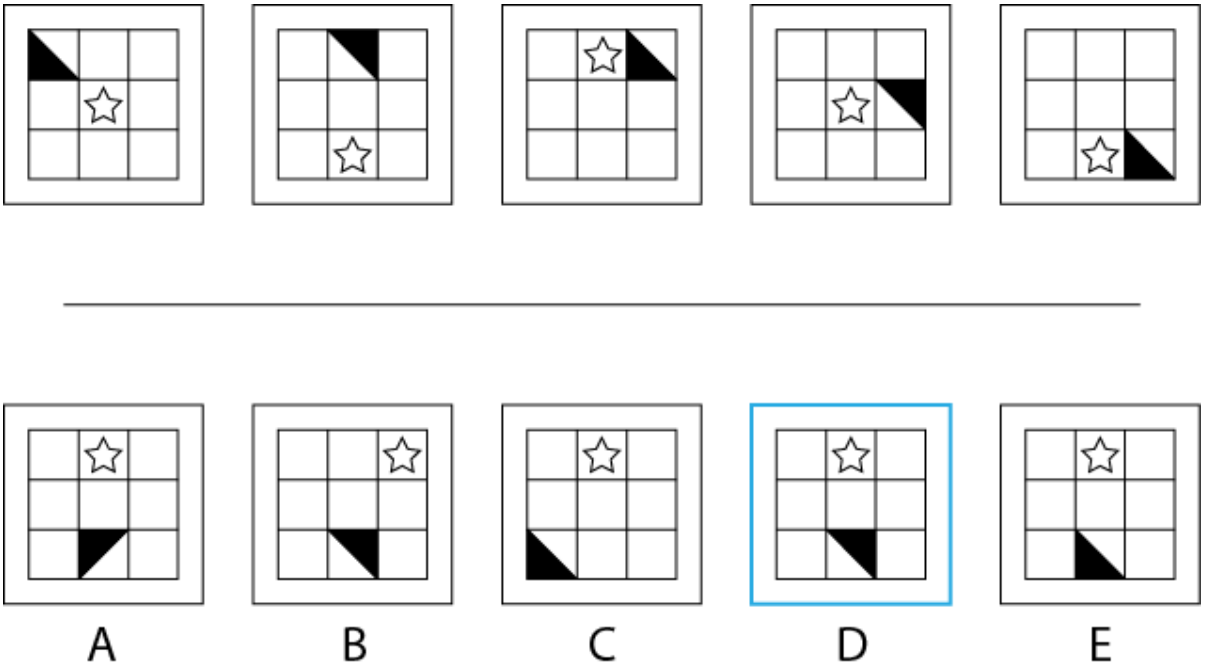
Rule 1: Two new circles are added to the chain each time.
Rule 2: The circles go in the sequence: crossed circle, unshaded circle, shaded circle, and then repeat.
Rule 3: The notch in the corner of the box moves one place clockwise each time.



Q22 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

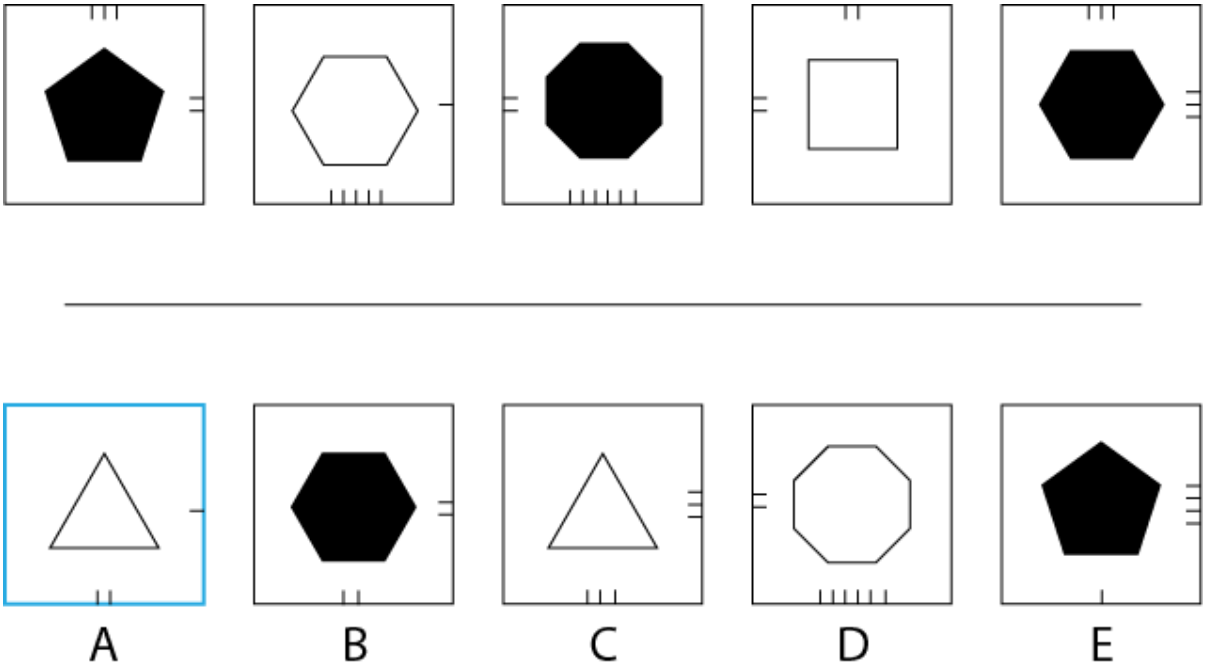
Rule 1: Each shape(exc. the star) moves up one place each time.
Rule 2: The star moves down one place each time, then begins again in the next column.
Rule 3: The shaded shape moves down one place each time then begins again from the top.



Q23 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

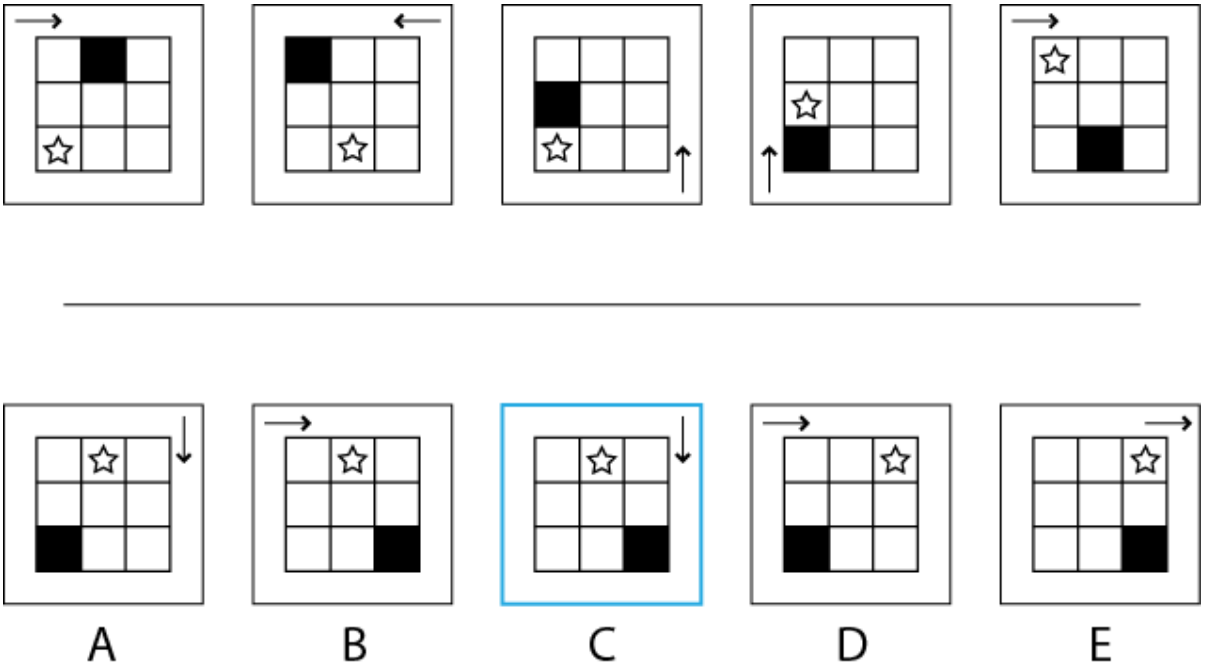
Rule 1: The star moves down one place each time, then begins again from the top.
Rule 2: The halved square moves one place clockwise each time.
Rule 3: The halves of the square alternate between shaded and unshaded.



Q24 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

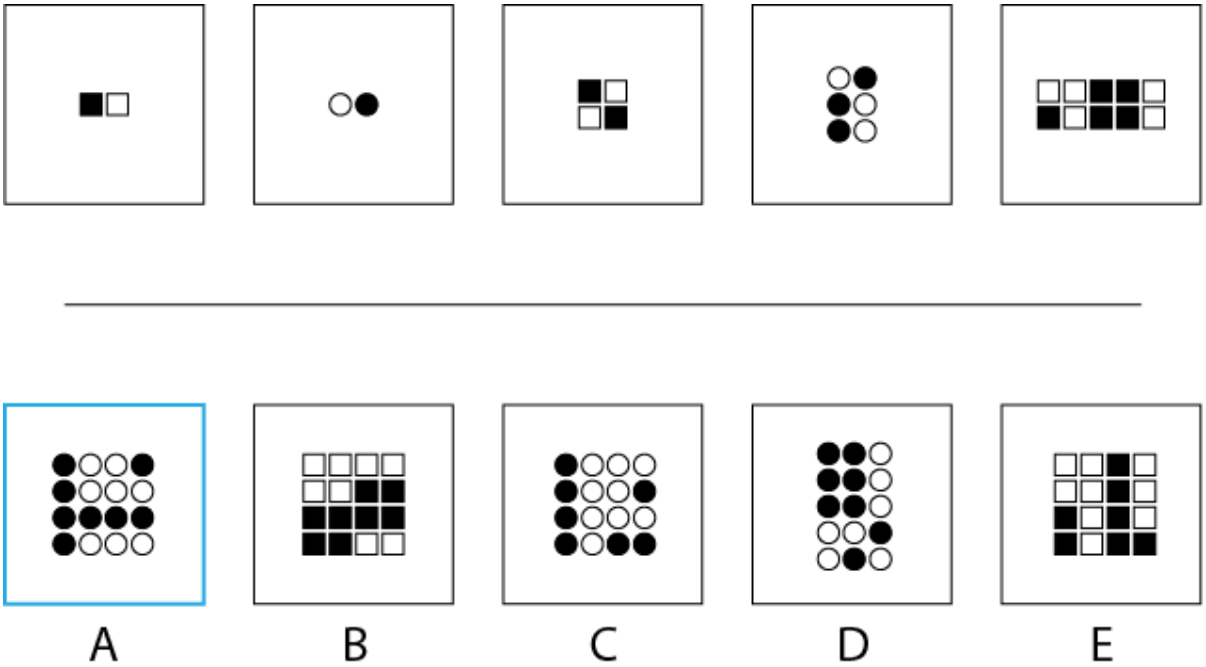
Rule 1: Both sets of notches move one place clockwise each time.
Rule 2: The total number of notches is equal to the total number of edges on the shape in the centre.
Rule 3: The shape alternates between shaded and unshaded.



Q25 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

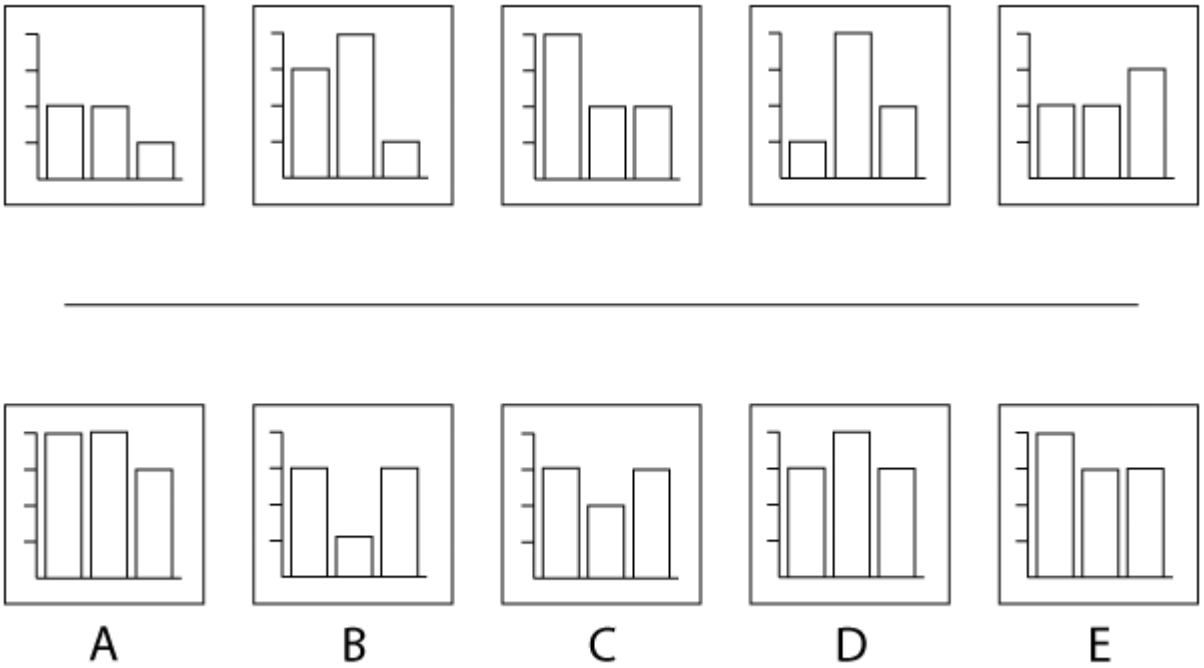
Rule 1: The arrow moves one place clockwise around the grid each time.
Rule 2: The arrow indicates where the star moves to in the next grid.
Rule 3: The shaded square moves one place counterclockwise around the grid each time.



Q26 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

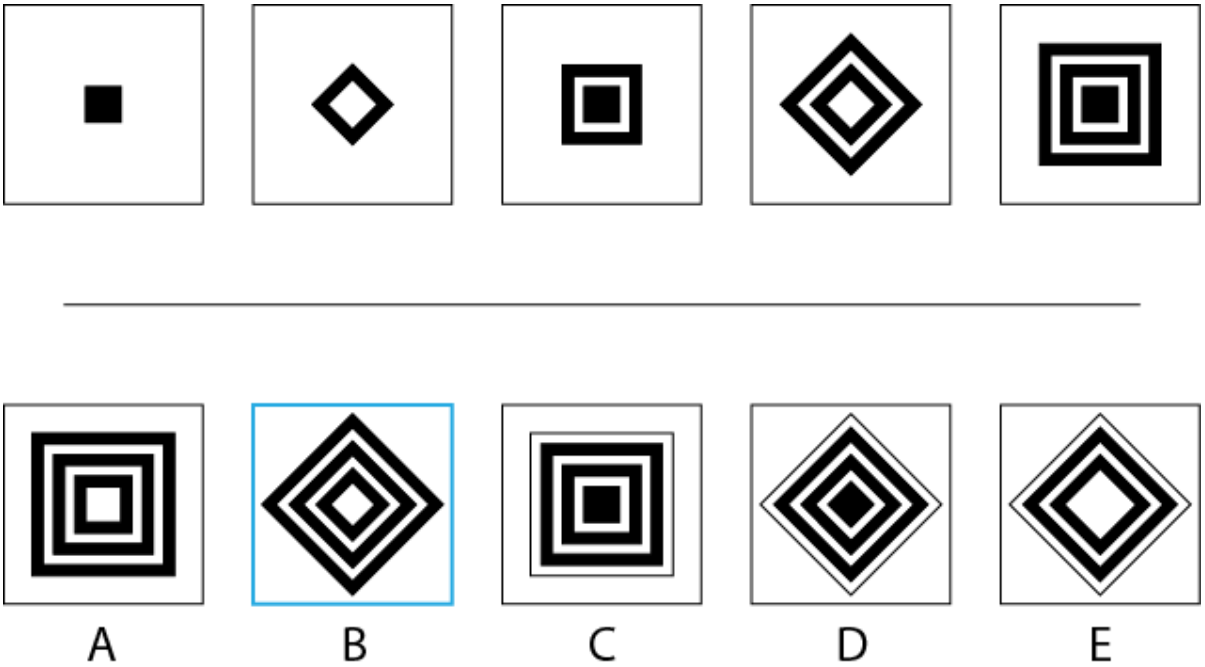
Rule 1: The shapes alternate between circle and square.
Rule 2: The total number of shapes in each box is equal to the total number of shapes in the previous two boxes.
Rule 3: Exactly half of the shapes are shaded each time.



Q27 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

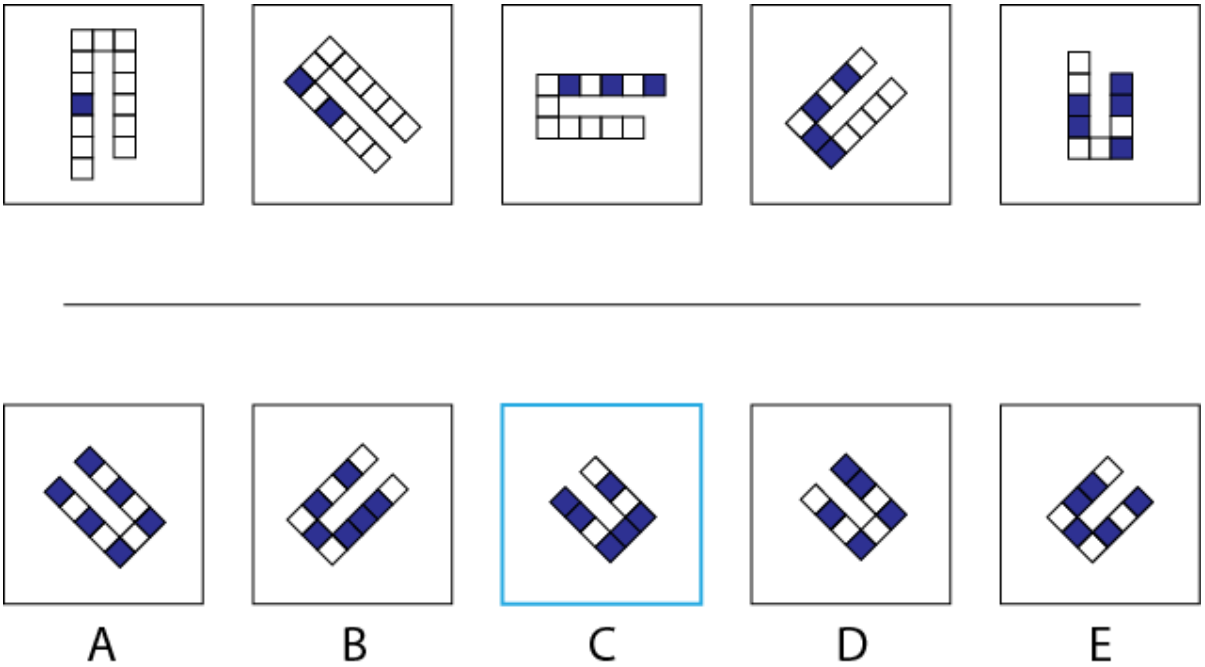
Rule 1: The first bar increases by one each time, then the pattern repeats.
Rule 2: The heigh of the second bar alternates between the second and fourth level of the graph.
Rule 3: The third bar increases by one every two boxes.



Q28 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: An additional square is added each time.
Rule 2: The shading alternates between squares each time.
Rule 3: The squares rotate 45˚ each time.



Q29 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The symbol rotates 45˚ counterclockwise each time.
Rule 2: The total number of shaded squares increass by one each time.
Rule 3: One square is removed from the symbol each time.

A B C D E

Q30 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The triangle rotates 90˚ clockwise each time.
Rule 2: The small shape alternates between a square and a circle.
Rule 3: The line in the small shape indicates the orientation of the lines in the triangle.

ABSTRACT REASONING TEST 7

Instructions

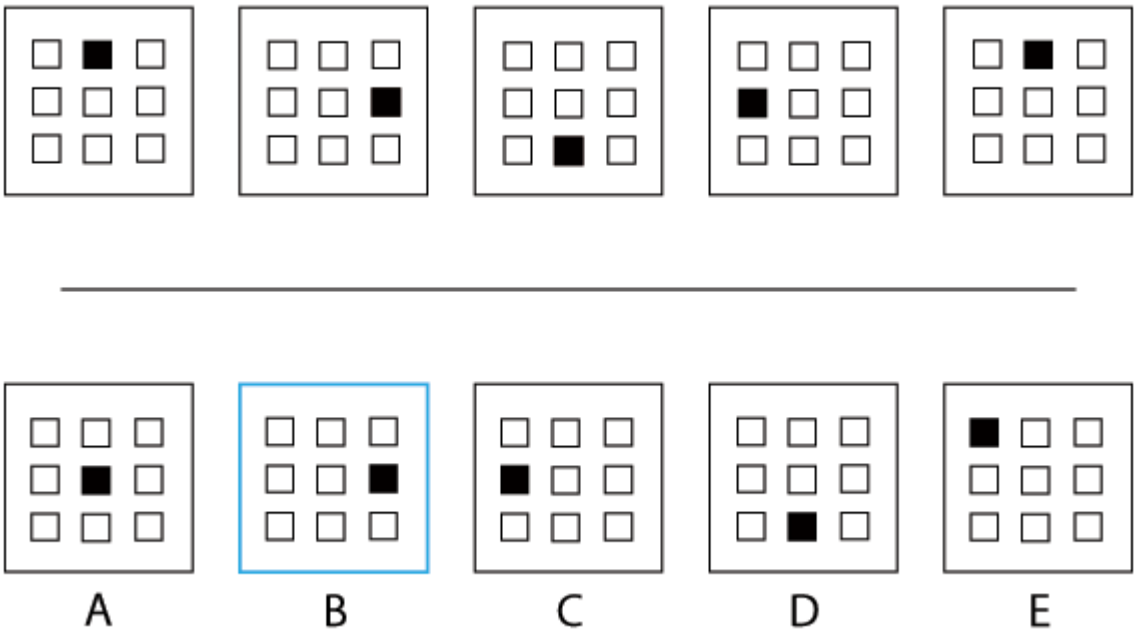
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**



Q1 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shaded square moves two places clockwise each time.

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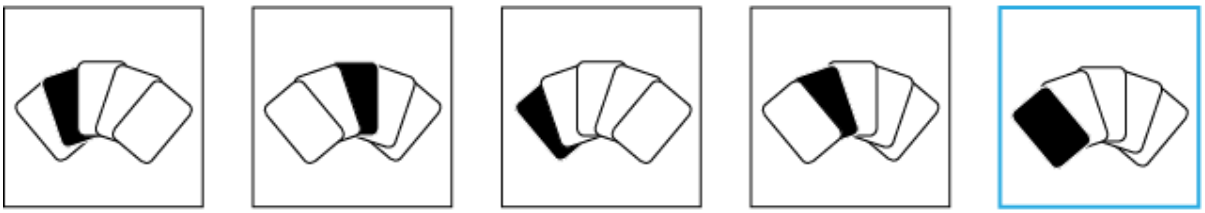
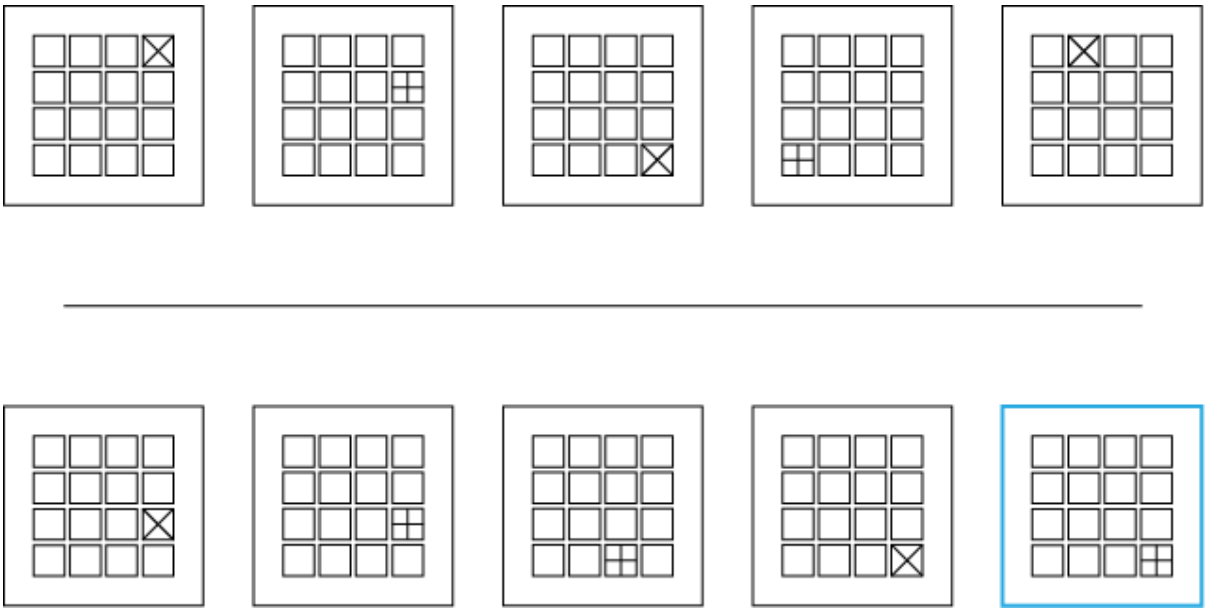


A B C D E

Q2 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

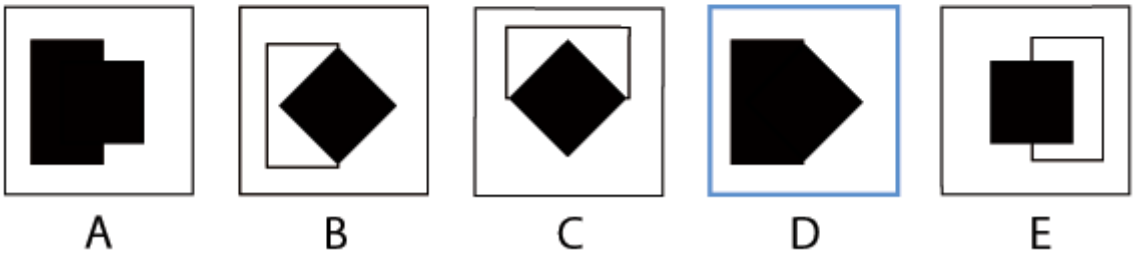
Rule 1: The shaded card moves three places to the right each time.
Rule 2: The cards alternate between moving from background to foreground and vice versa each time.



Q3 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

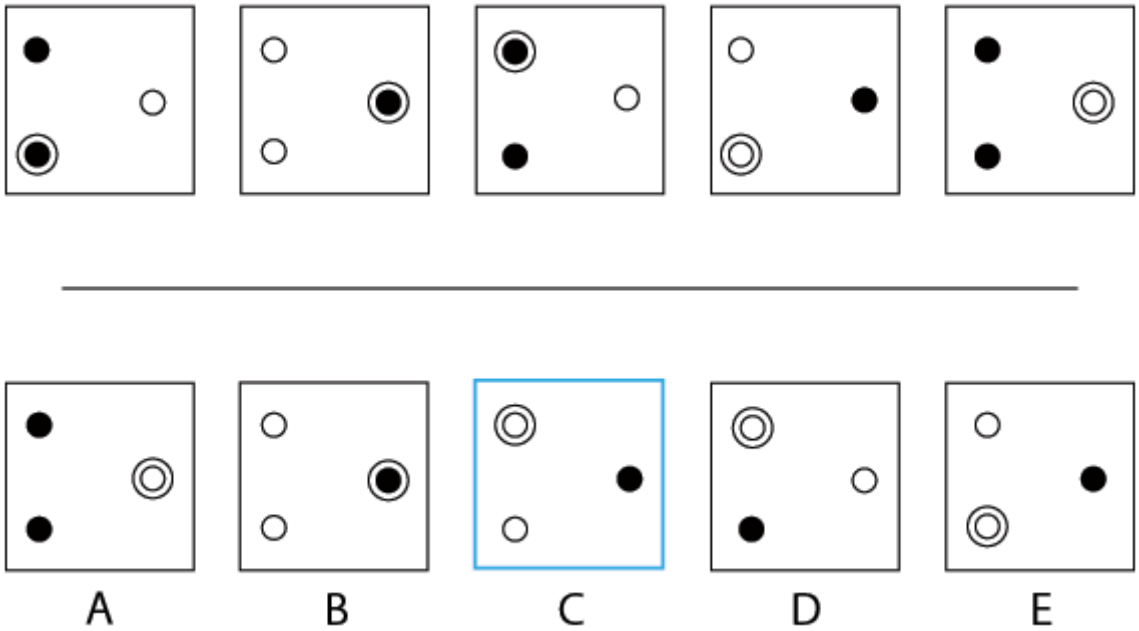
Rule 1: The crossed square moves clockwise one place, then two places, then three places and so on each time.
Rule 2: The cross rotates 45˚ each time.



Q4 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

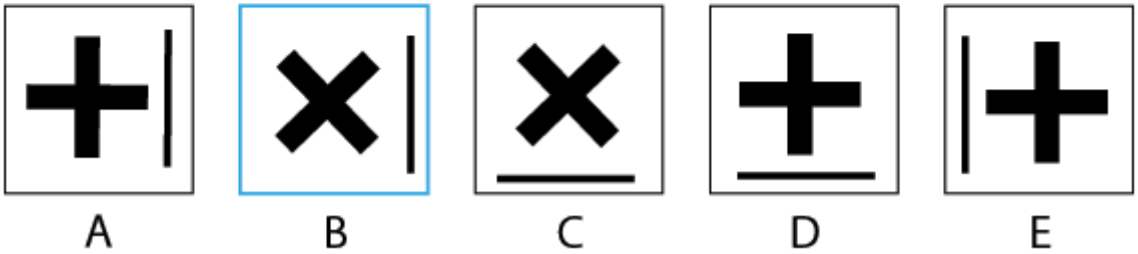
Rule 1: The shading of the shapes alternates between square, rectangle or both shaded.
Rule 2: The square rotates by 45˚ every turn.



Q5 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

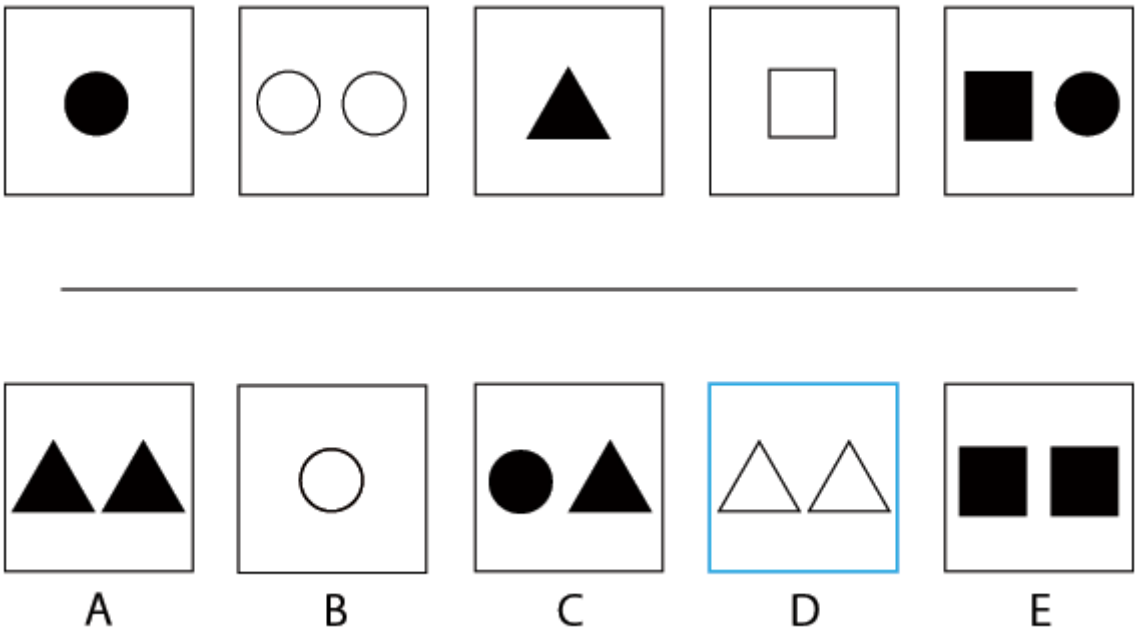
Rule 1: The shading alternates left to right each turn.
Rule 2: The larger circle moves one space anti-clockwise each turn.



Q6 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

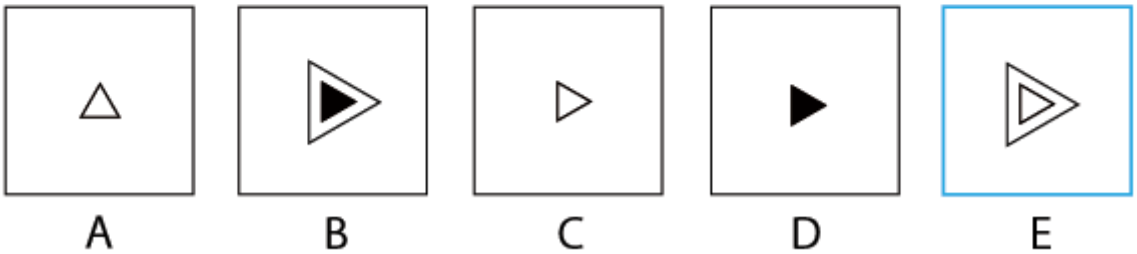
Rule 1: The line moves one place clockwise each time.
Rule 2: The cross rotates by 45˚ each time.



Q7 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

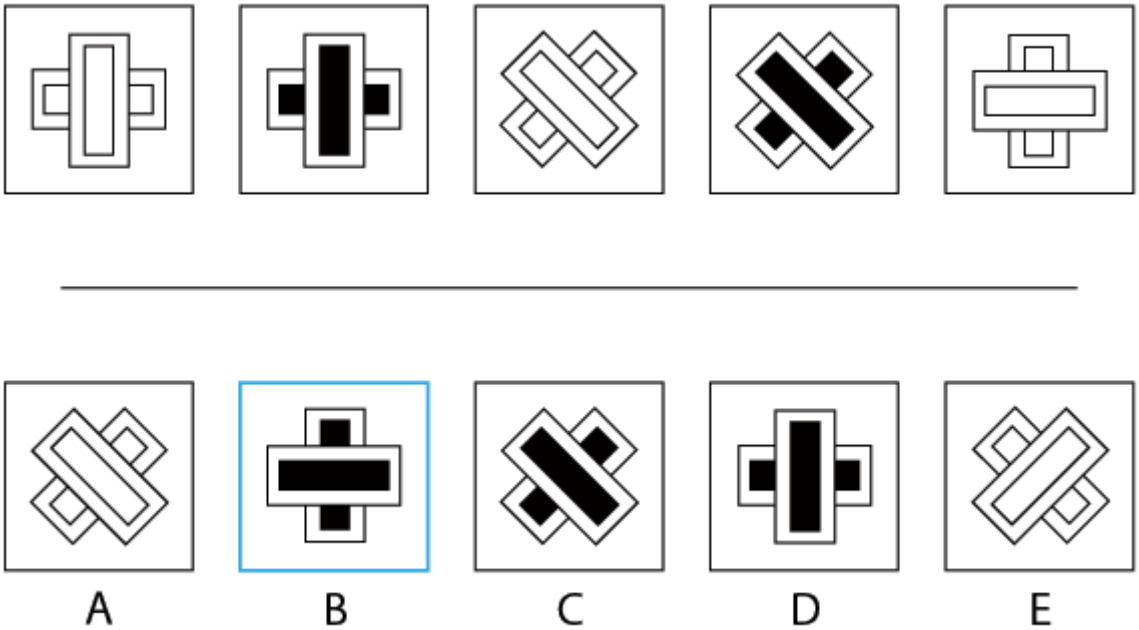
Rule 1: The shading alternates between boxes.
Rule 2: The total number of edges within each box increases by one each time.



Q8 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

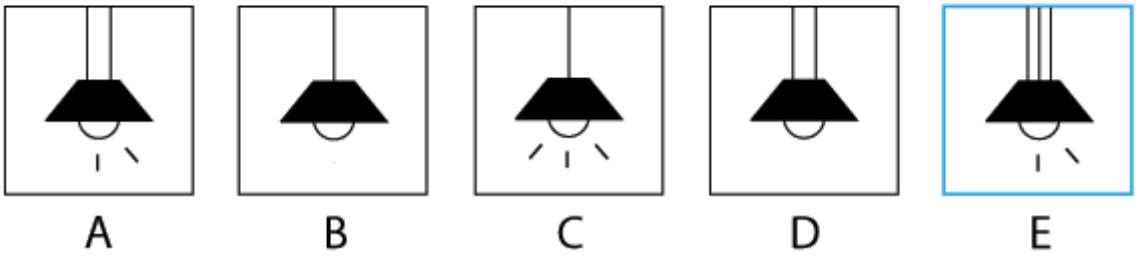
Rule 1: The triangle alternates between rotating 90˚ clockwise and 90˚ anti-clockwise each time.
Rule 2: The centre alternates between being shaded and unshaded.
Rule 3: At every second rotation, the number of triangles reduces by one.



Q9 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The middle rectangles alternate between being shaded and unshaded.
Rule 2: The shape rotates 45˚ anti-clockwise every two turns.



Q10 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The number of wires the lampshade hangs from increases until there are three, at which point it reverts back to one.

Rule 2: The number of lines below the light bulb reduce by one until there are none, at which point it reverts back to three.

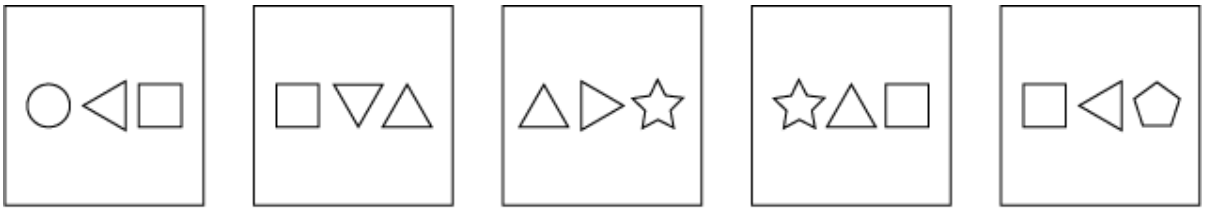
A B C D E

Q11 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The middle shape alternates between a circle, a square and a pentagon.

Rule 2: The small shaded circle moves one place clockwise after every three turns.

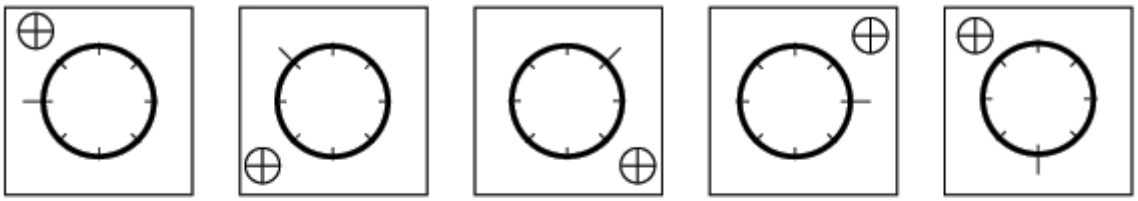


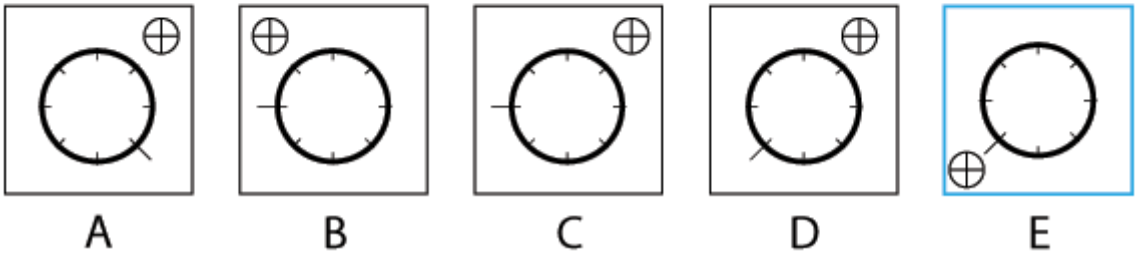
A B C D E

Q12 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The middle triangle rotates 90˚ anti-clockwise each time.
Rule 2: The final symbol in the box is the first symbol in the next box.

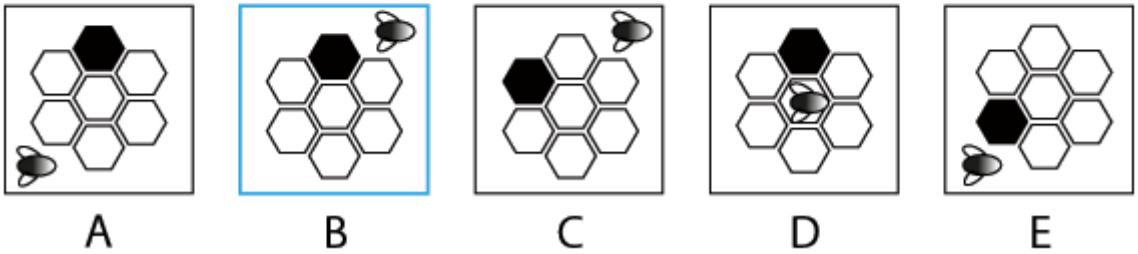




Q13 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

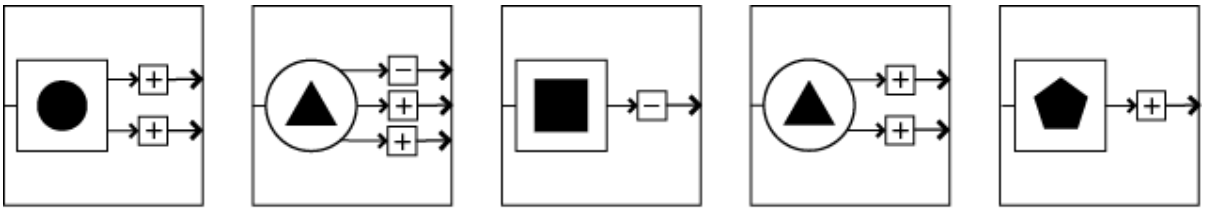
Rule 1: The pointer alternates between turning 45˚ or 90˚ clockwise.
Rule 2: The crosshair symbol moves one place anti-clockwise each time.

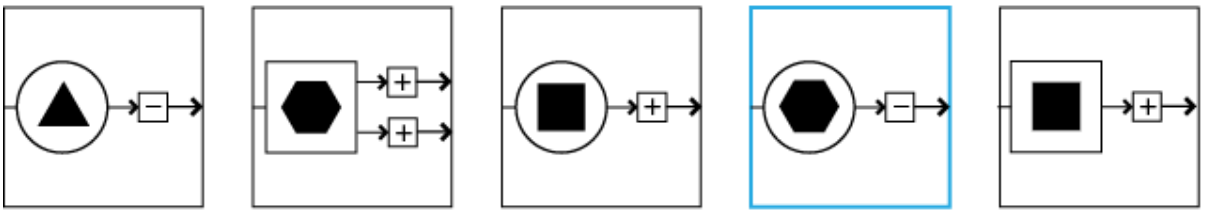


Q14 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The bee moves diagonally from the bottom left to top right.
Rule 2: The shaded segment moves one place anti-clockwise each turn.



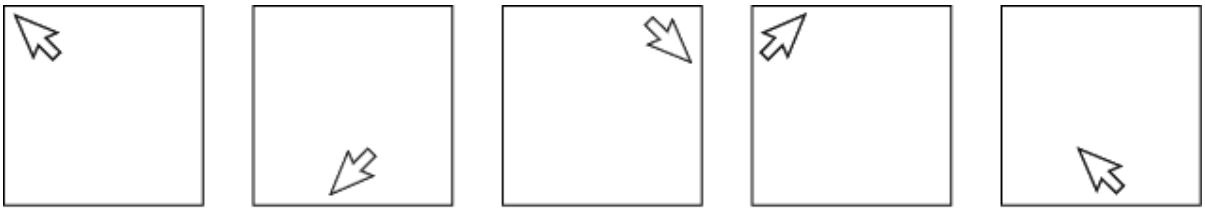


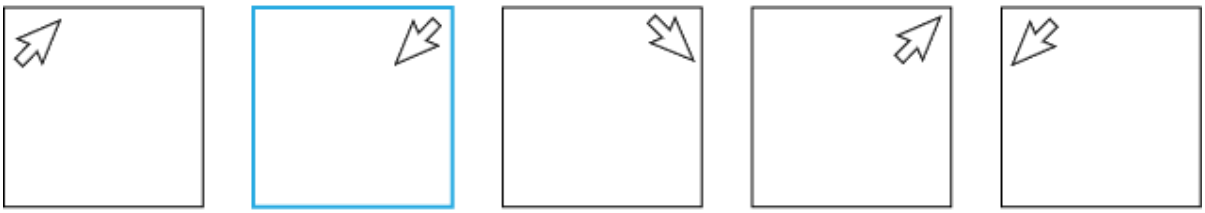
A B C D E

Q15 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The large outer shape alternates between square and circle each time.
Rule 2: The small boxes indicate how many edges are added to and/or are subtracted from the shaded shape each time.



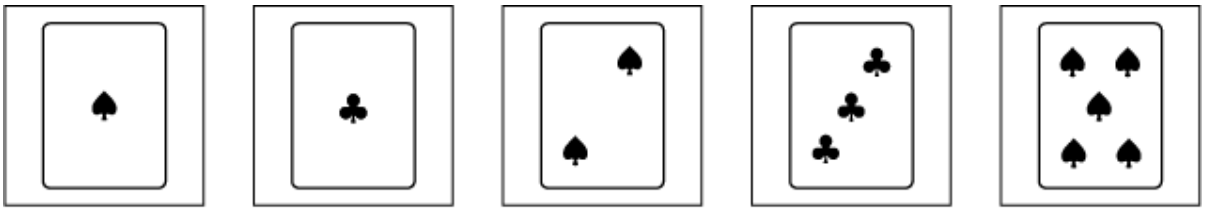


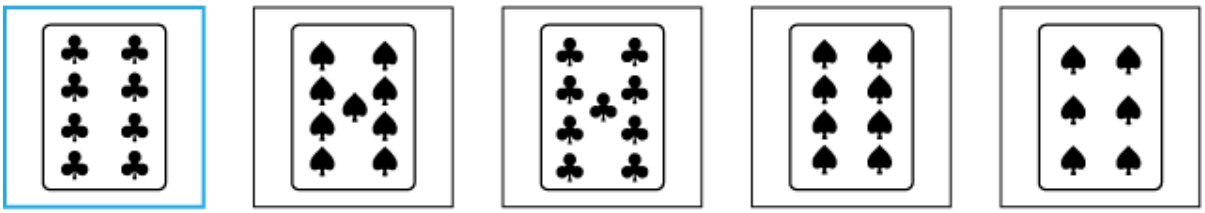
A B C D E

Q16 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The cursor moves from top left, to centre bottom to top right and then repeats the pattern.
Rule 2: The cursor rotates 90˚anti-clockwise each time.





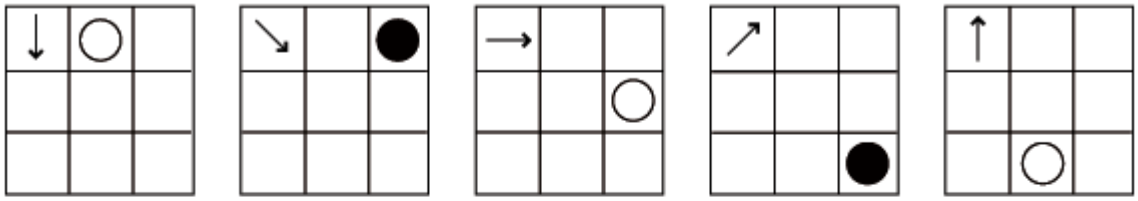
A B C D E

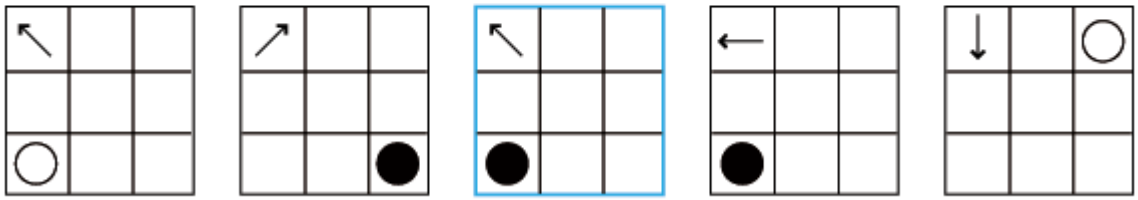
Q17 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of symbols in each box is equal to the total number of symbols in the two previous boxes combined.

Rule 2: The symbols alternate between spades and clubs.



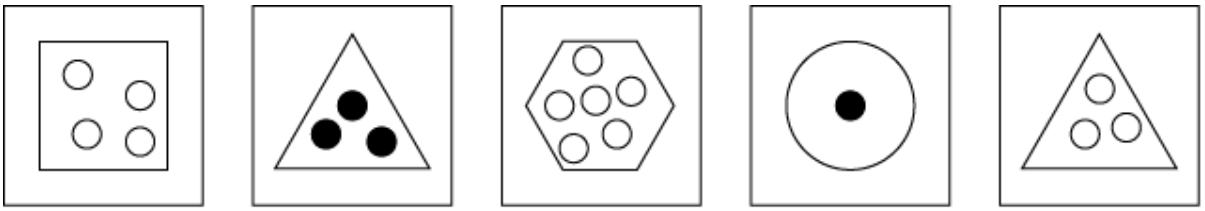


A B C D E

Q18 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow spins 45˚ anti-clockwise each turn.
Rule 2: The circle moves one place clockwise each turn.
Rule 3: The circle alternates between being shaded and unshaded.

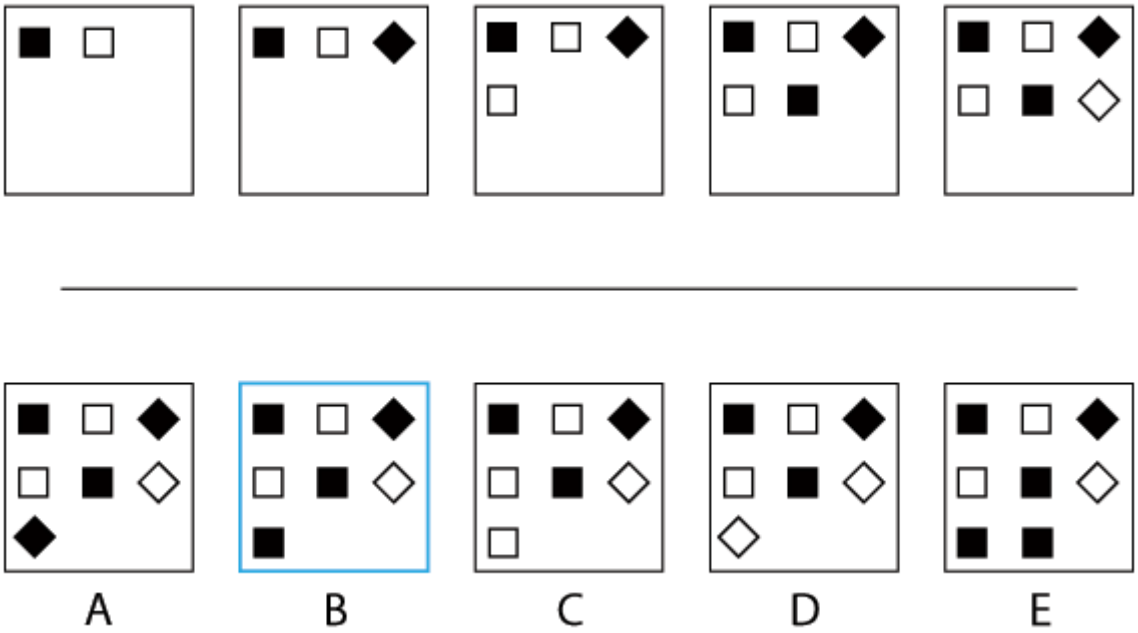


A B C D E

Q19 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

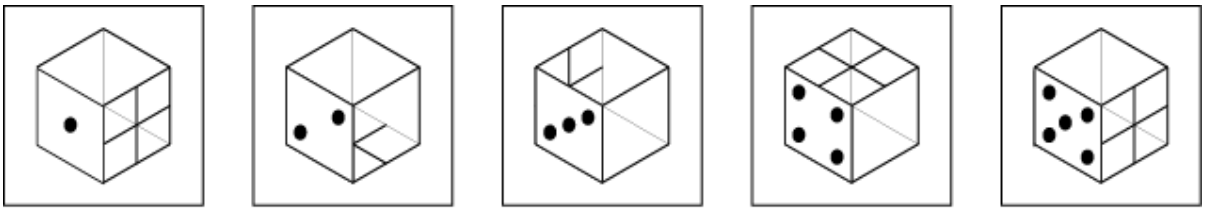
Rule 1: The total number of small circles is equal to the total number of edges on the large shape.
Rule 2: The small circles alternate between shaded and unshaded.

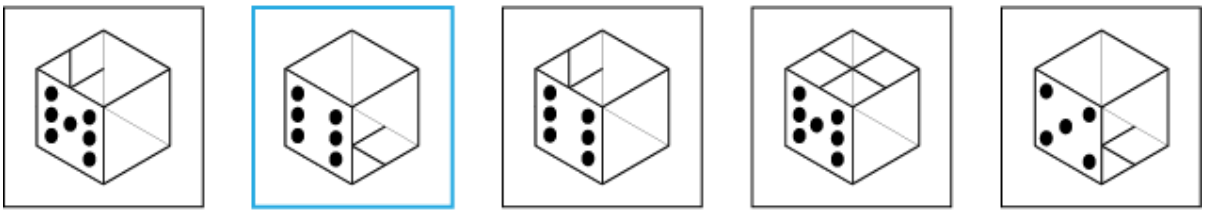


Q20 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The squares alternate between being shaded and unshaded.
Rule 2: One square is added each time and this continues onto the next row.
Rule 3: Every third square is positioned diagonally.



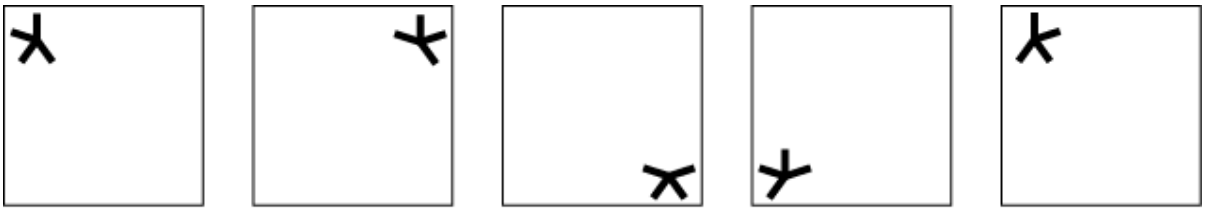


A B C D E

Q21 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The crossed face of the cube moves one place clockwise each time.
Rule 2: the total numbers of dots on the left hand face of the cube increases by one each time.

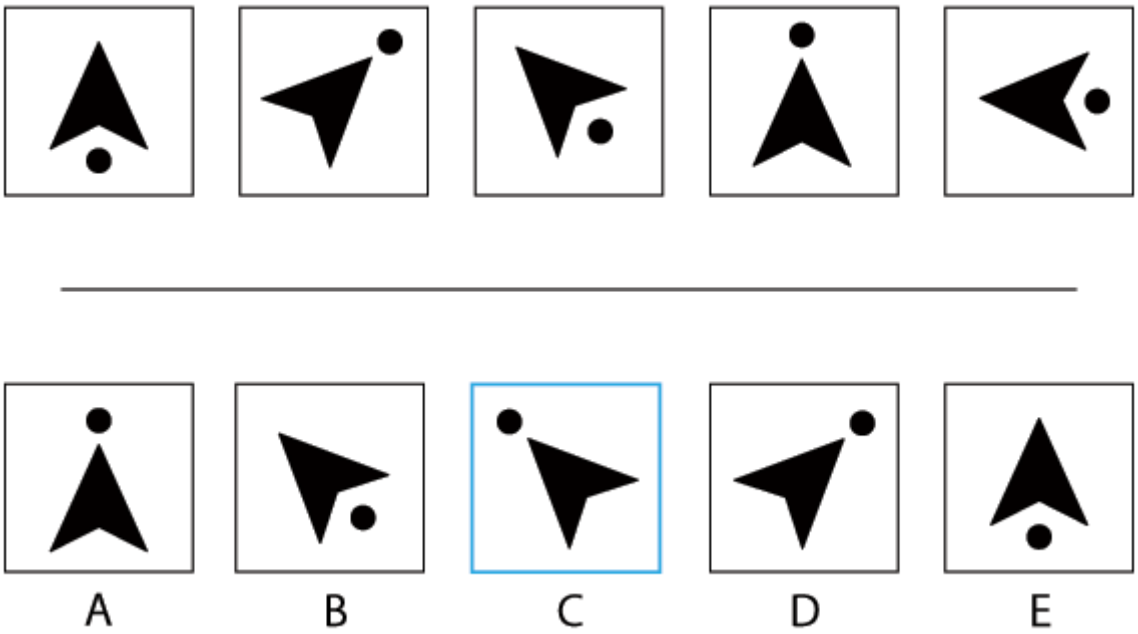


A B C D E

Q22 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The star moves one place clockwise around the box each time.
Rule 2: The missing point moves two places clockwise each time.

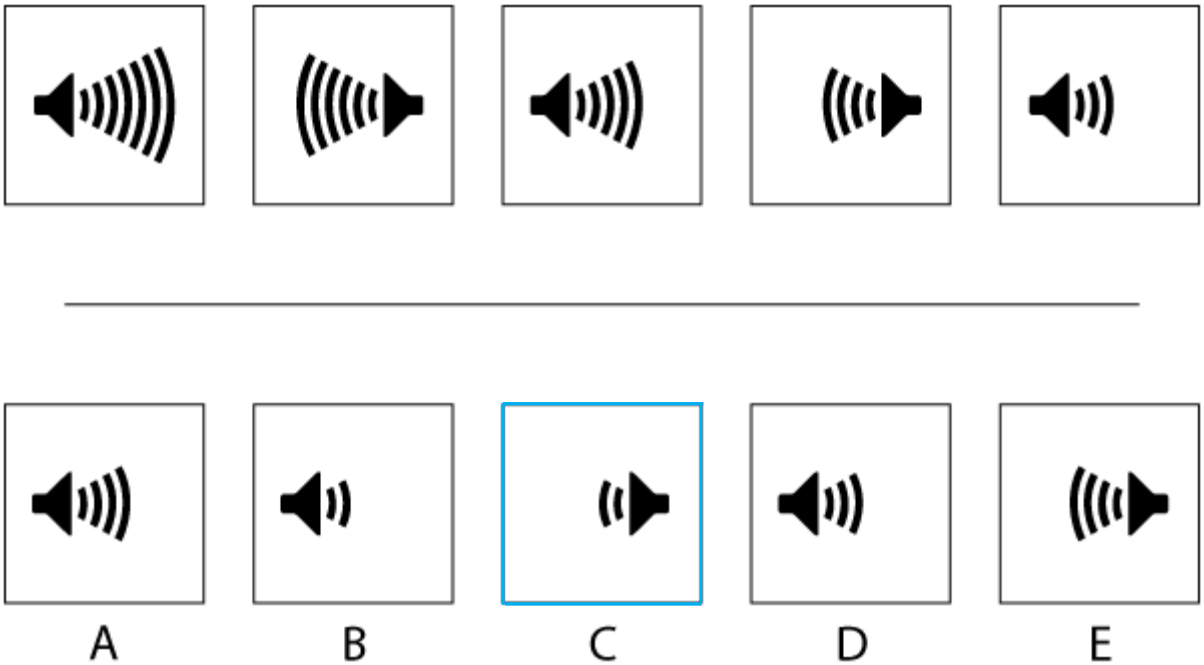


Q23 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow alternates between turning 45˚ clockwise and 90˚ anti-clockwise.

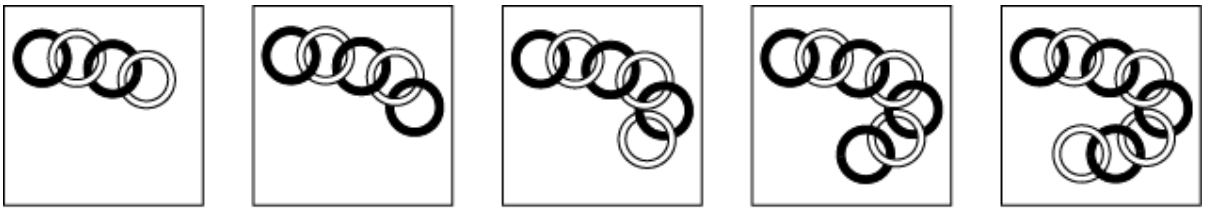
Rule 2: The shaded circle alternates between being at the top or bottom of the arrow.

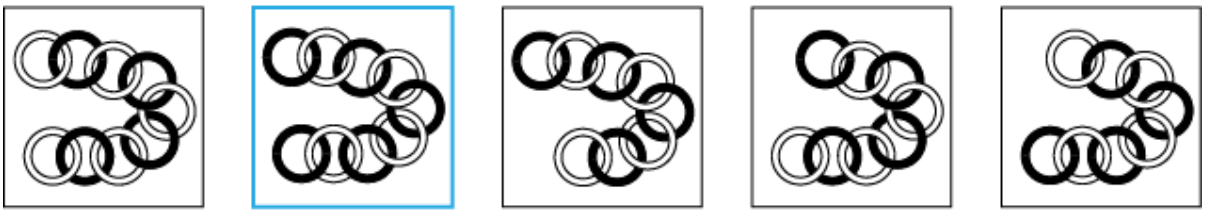


Q24 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The speaker alternates between pointing left and right each time.
Rule 2: The total number of bars decreases by one each time.



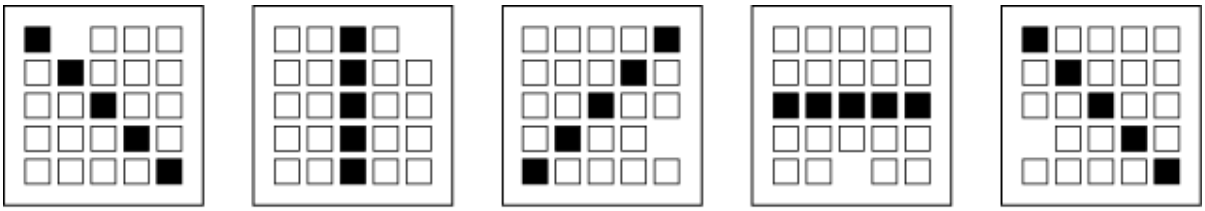


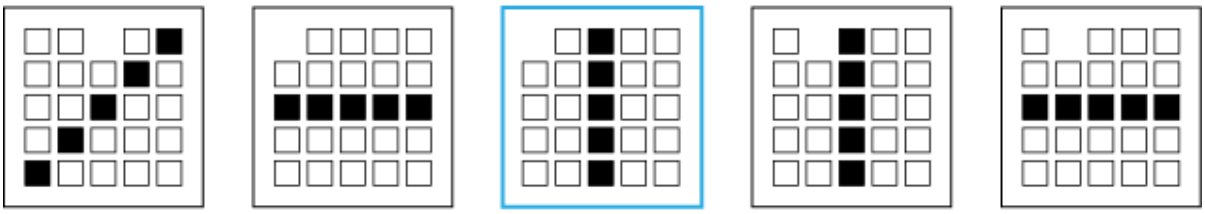
A B C D E

Q25 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: A new link is added to the chain each time.
Rule 2: As they are added, the links alternate between shaded and unshaded.



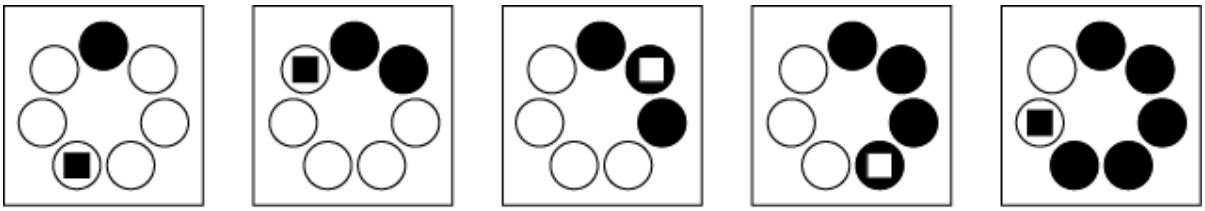


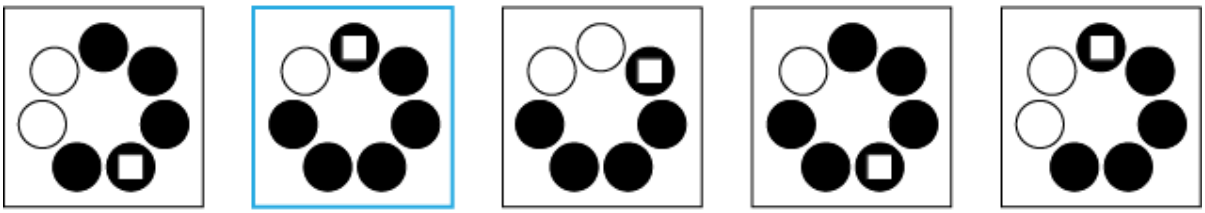
A B C D E

Q26 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shaded row of squares rotates 45˚ clockwise each time.
Rule 2: The missing square moves three places clockwise each time.



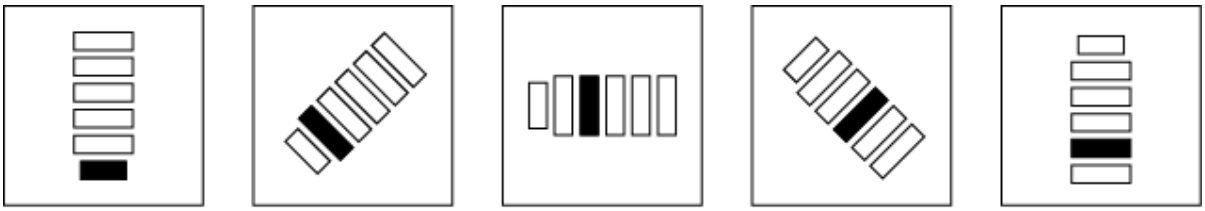


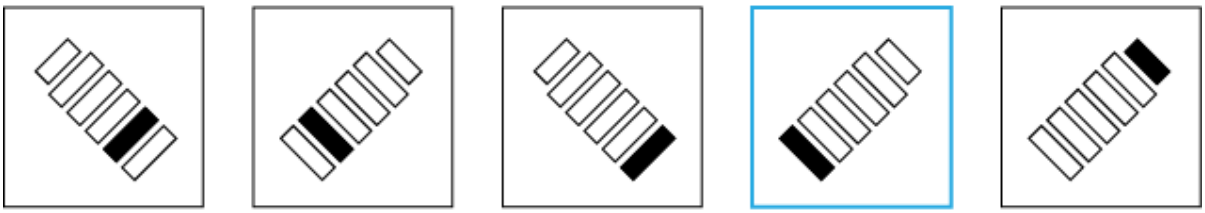
A B C D E

Q27 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of shaded circles increases by one each time.
Rule 2: The Square moves two places clockwise each time.



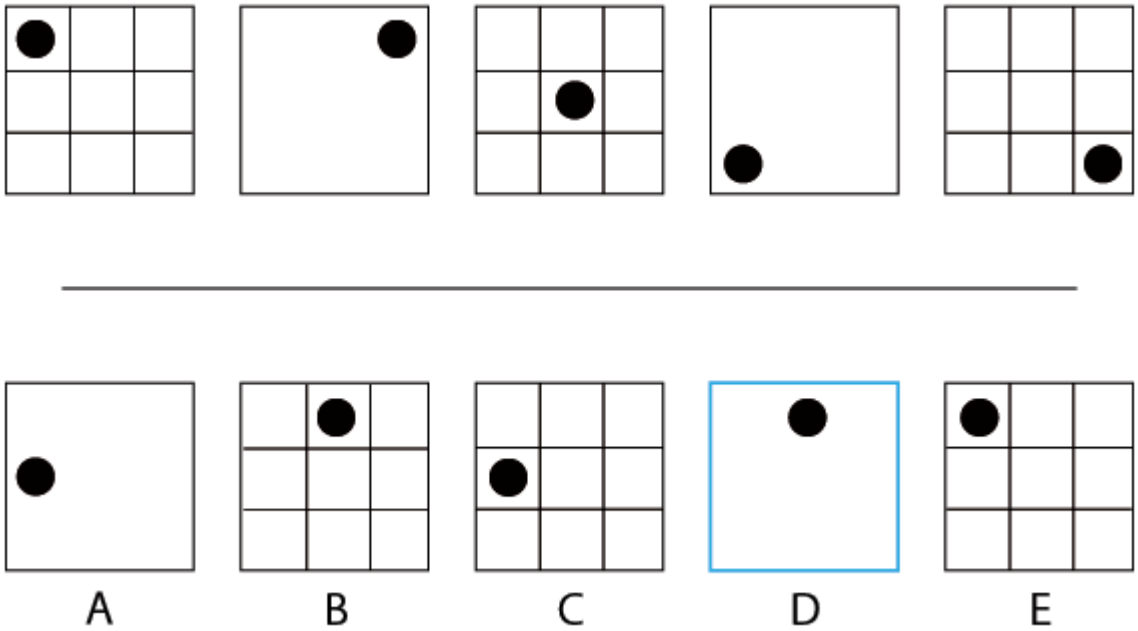


A B C D E

Q28 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

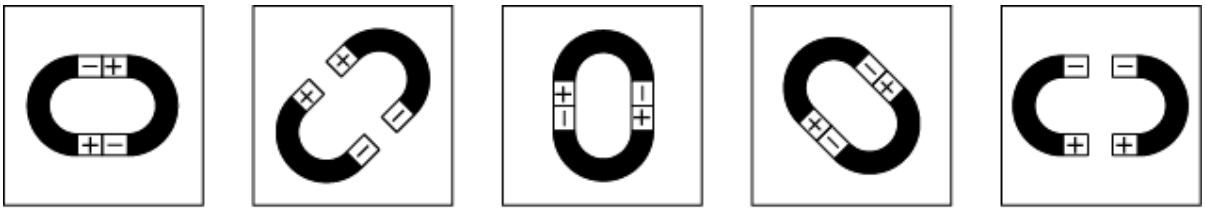
Rule 1: The shaded bar moves up one place each time, regardless of the orientation of the bars.
Rule 2: The bars rotate 45˚ clockwise each time.



Q29 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The circle moves two places to the right each time and this continues onto the next row.
Rule 2: The gridlines disappear from every other square.



A B C D E

Q30 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The magnets rotate 45˚ counter clockwise each time.
Rule 2: The magnets connect when both touching poles are opposite signs. When the touching poles are identical, the magnets are not connected.

-- End of Test --

ABSTRACT REASONING TEST 8

Instructions

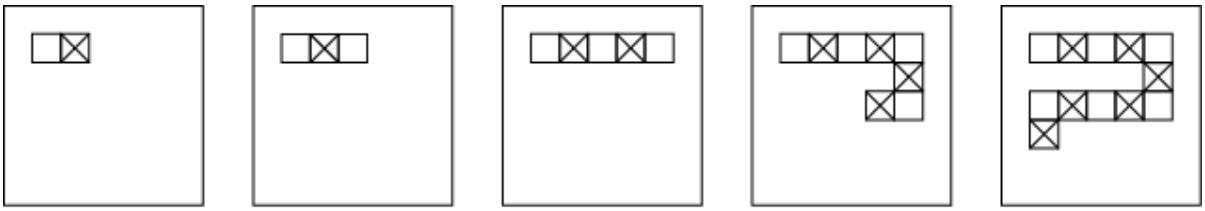
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

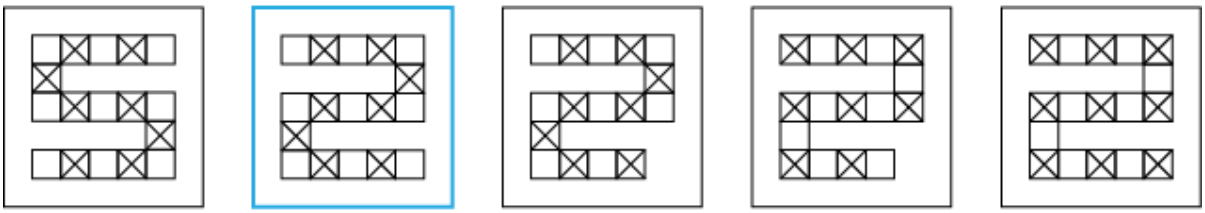
In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**



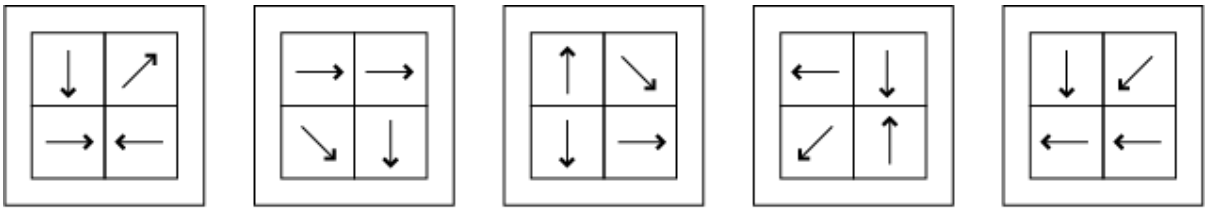


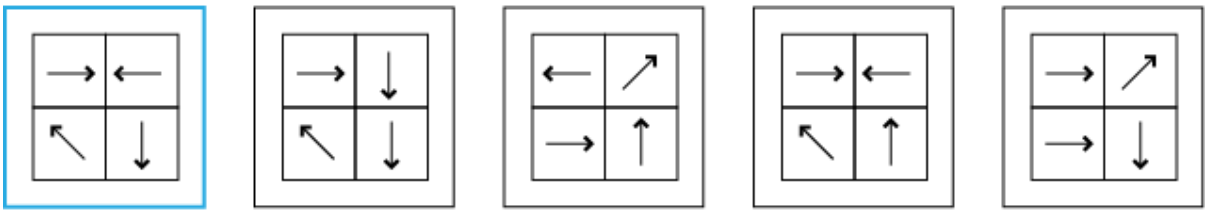
A B C D E

Q1 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: One new square is added, then two, then three and so on.
Rule 2: The squares in the pattern alternate between shaded and unshaded.





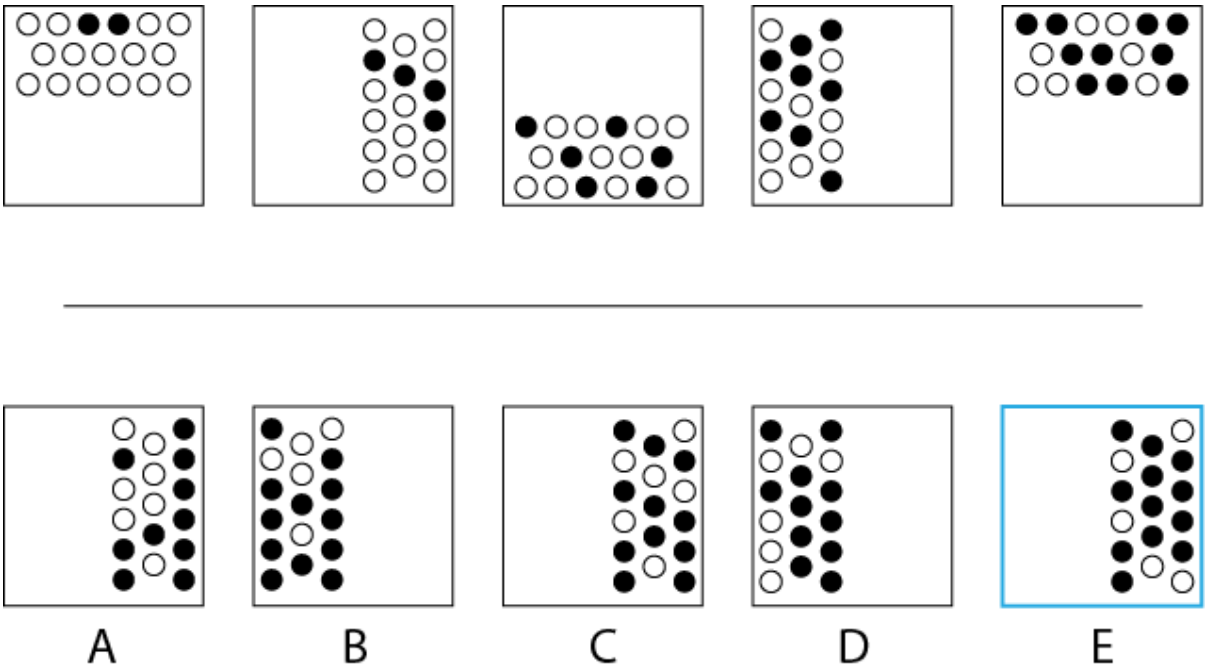
A B C D E

Q2 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The top left and bottom right arrows rotate 90˚ counterclockwise each time.

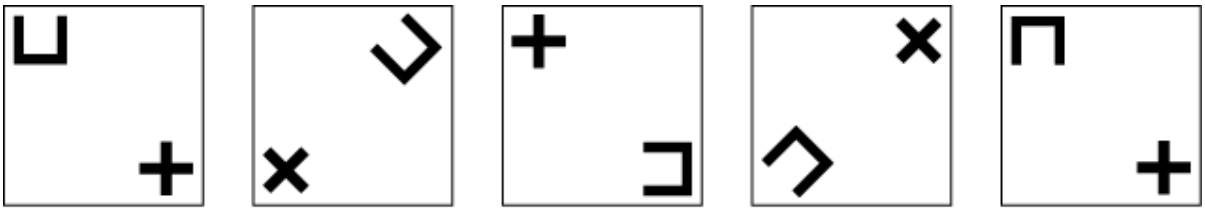
Rule 2: The top right and bottom left arrows rotate 45˚ clockwise each time.



Q3 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The rows of circles rotate one place clockwise each time.
Rule 2: The total number of shaded circles increases by two each time.

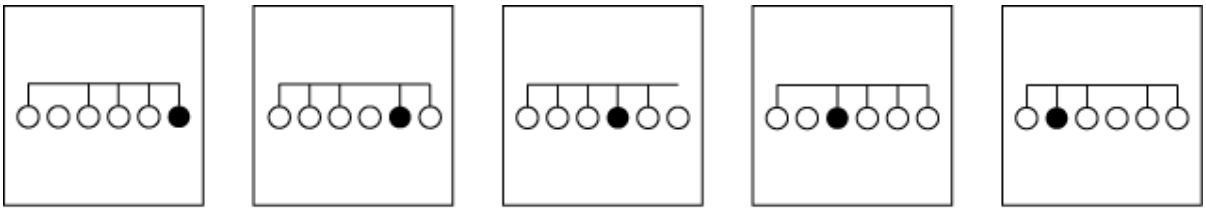


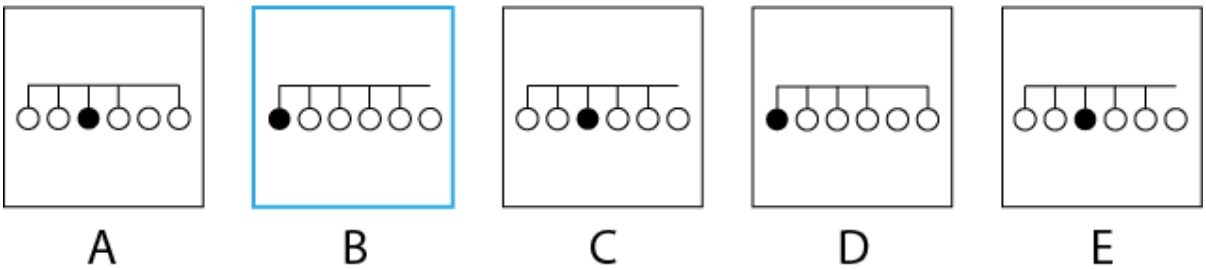
A B C D E

Q4 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: Both symbols move one place clockwise around the box each time.
Rule 2: Both symbols rotate 45˚ counterclockwise each time.

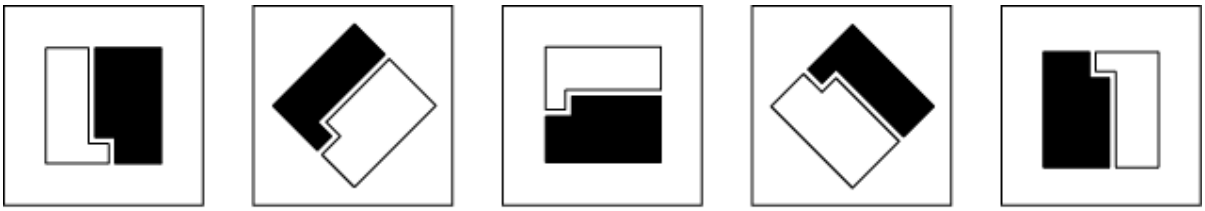


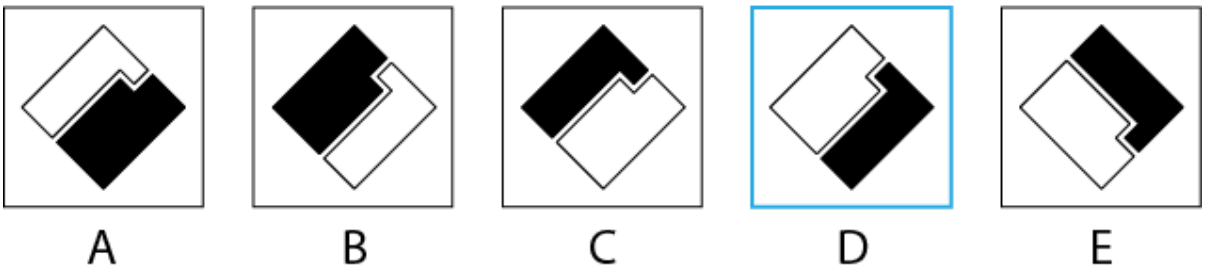


Q5 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The missing vertical line moves two places to the right each time.
Rule 2: The shaded circle moves one place to the left each time.

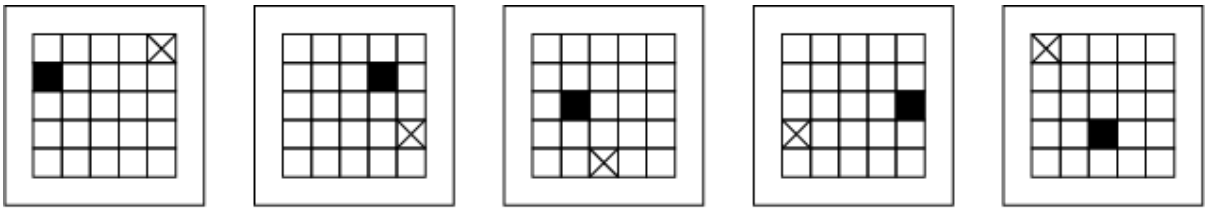


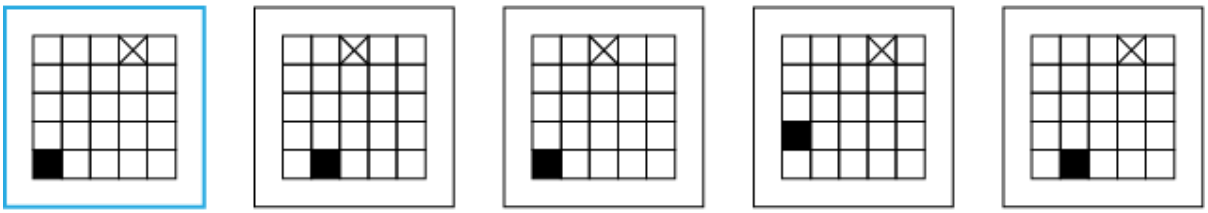


Q6 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The symbol rotates 45˚ clockwise each time.
Rule 2: The segments of the symbol alternate between shaded and unshaded.



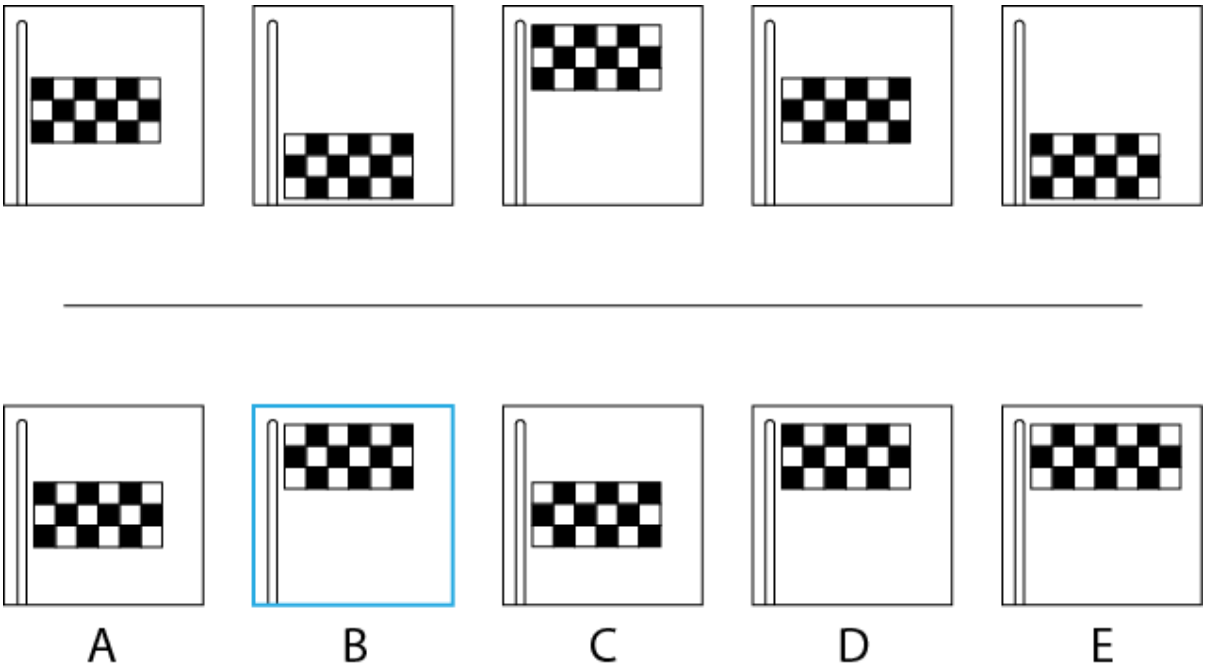


A B C D E

Q7 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The crossed box moves three places clockwise each time.
Rule 2: The shaded box moves three places to the right each time, and then begins again on the next row.

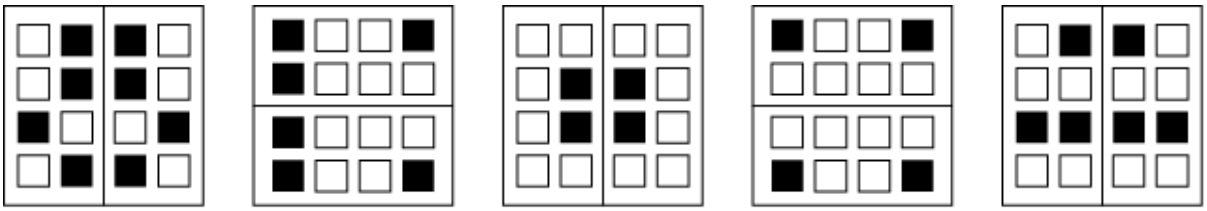


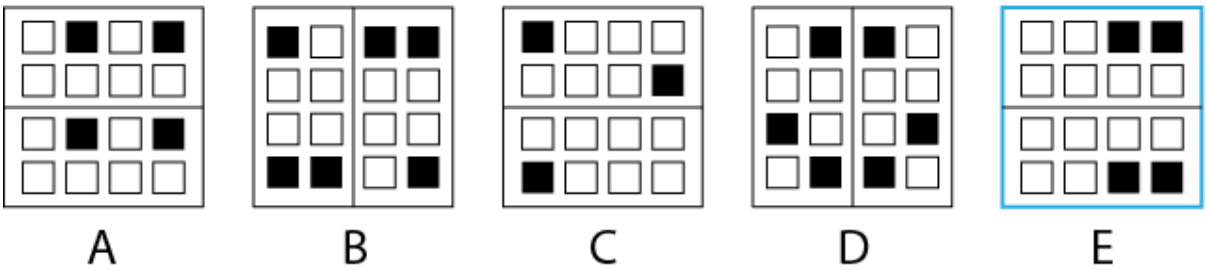
Q8 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The flag moves down one place each time, then begins again from the top of the flagpole.

Rule 2: Each square on the flag alternates between shaded and unshaded each time.

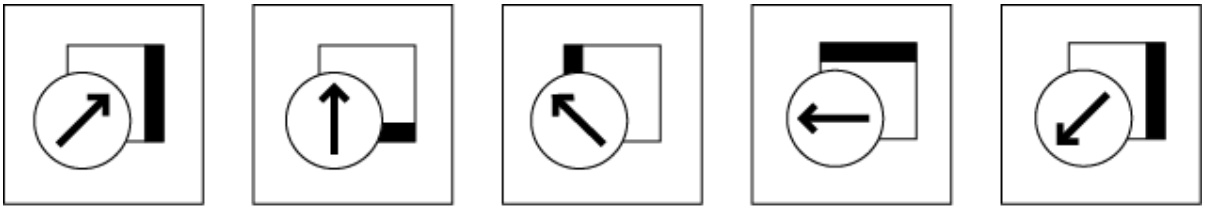


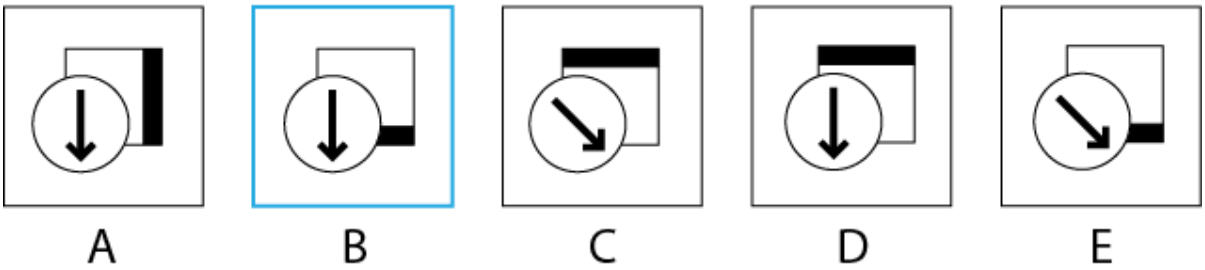


Q9 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The line dividing the squares alternates between vertical and horizontal.
Rule 2: All opposite squares across the dividing line are identical.

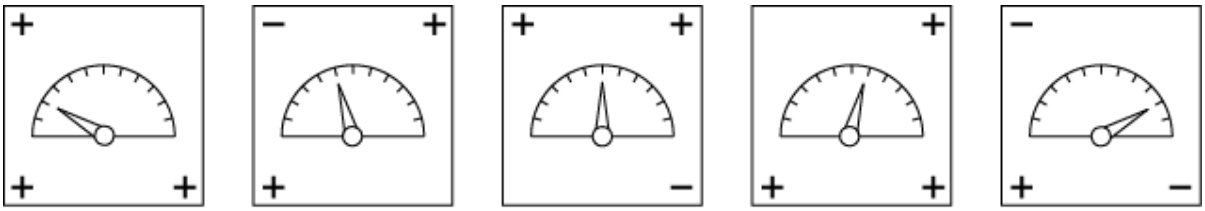




Q10 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow rotates 45˚ counterclockwise each time.
Rule 2: The square in the background rotates 90˚ clockwise each time.



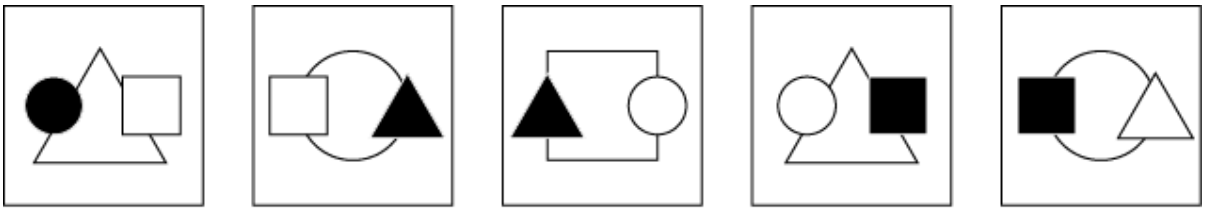
A B C D E

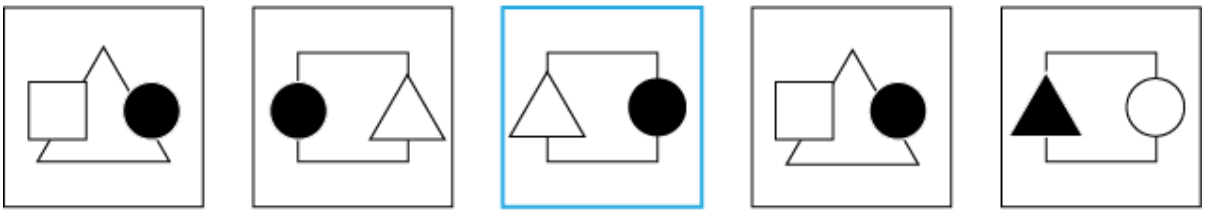
Q11 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The positive and negative symbols move one place clockwise each time.

Rule 2: The positive and negative symbols indicate the location of the gauge in the next box.





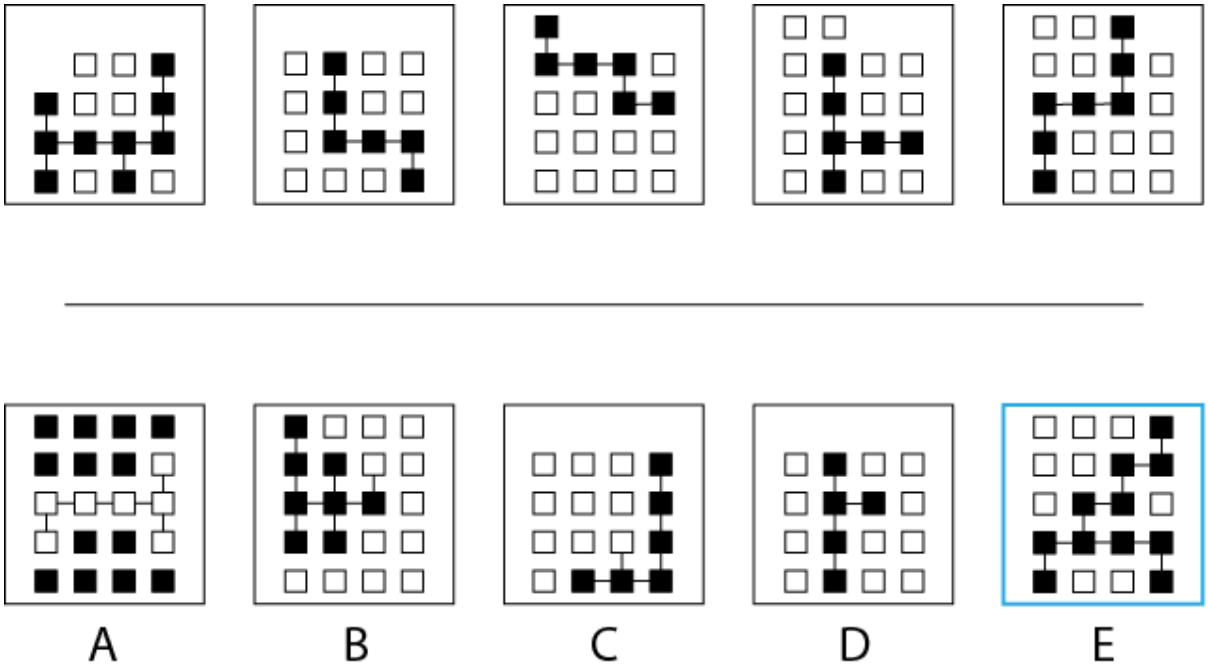
A B C D E

Q12 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: Each shape moves one place to the right each time. The middle shape is always enlarged.

Rule 2: The shaded shape alternates between the left and right hand sided shape.



Q13 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

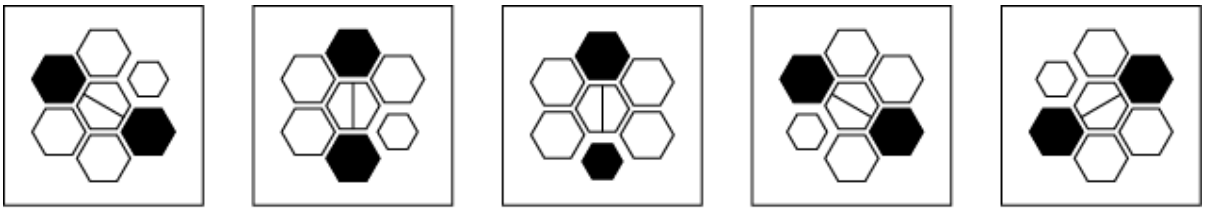
Rule 1: A new square is added to the grid each time.
Rule 2: All of the connected squares are shaded.

A B C D E

Q14 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The door moves one place to the right each time.
Rule 2: The chimney alternates between having two and three wisps of smoke.

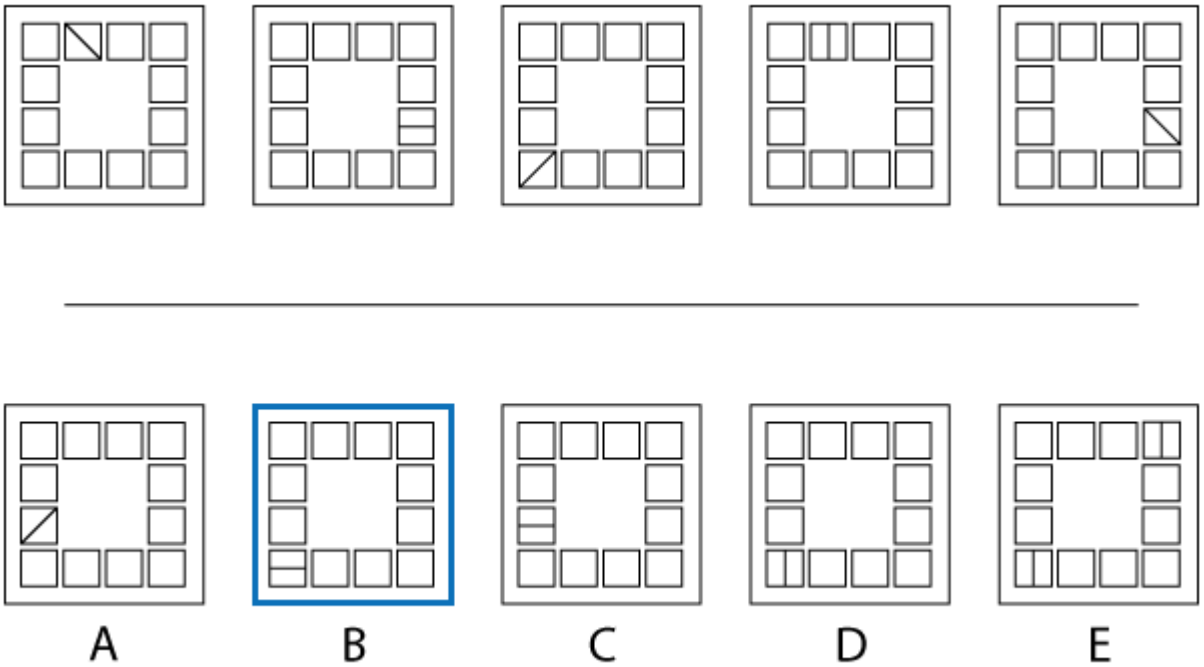


A B C D E

Q15 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

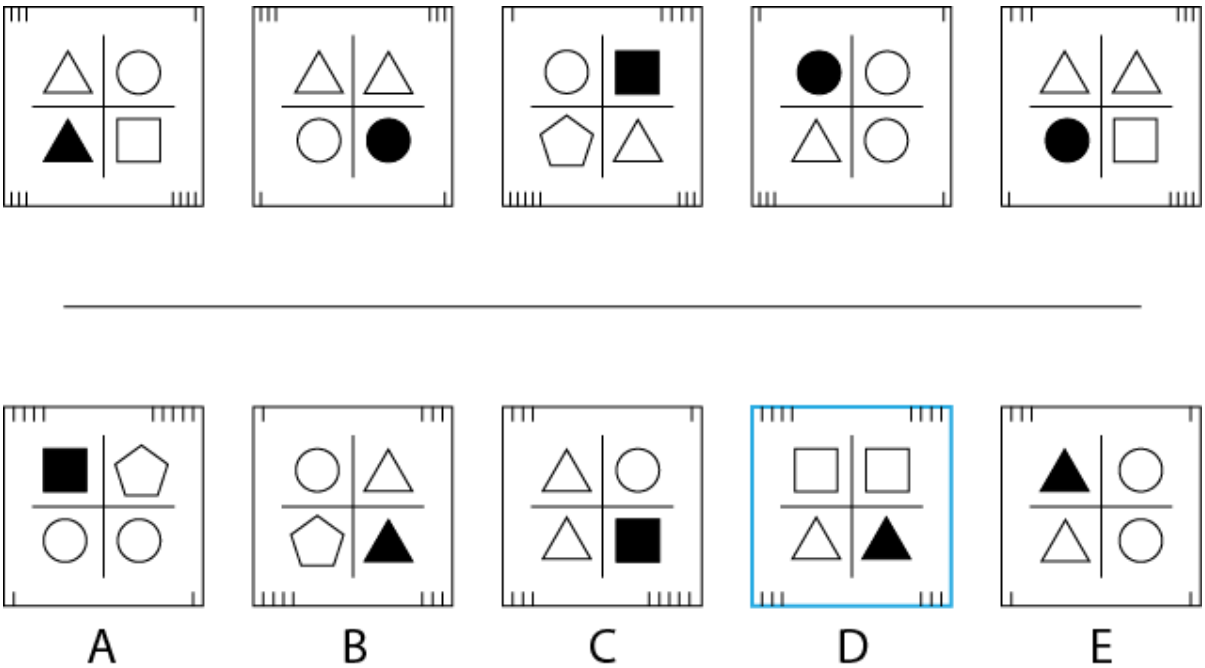
Rule 1: The small hexagon moves one place clockwise each time.
Rule 2: The shaded hexagons are determined by the line in the central hexagon. The two hexagons connected by the line are always shaded.



Q16 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The lined square moves 4 places clockwise each time.
Rule 2: The line in the square rotates 45˚ counterclockwise each time.

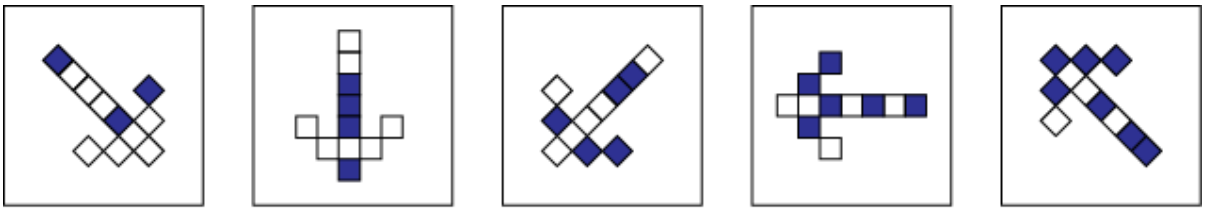


Q17 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of edges on each shape is equal to the number of notches in that shape's corner.

Rule 2: The shaded shape moves one place counterclockwise each time.

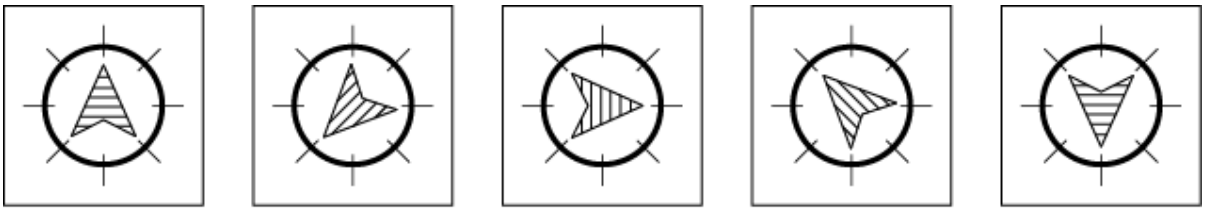


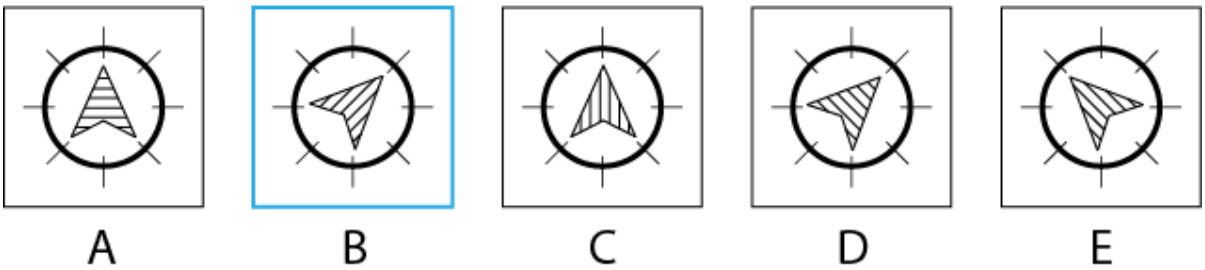
A B C D E

Q18 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow rotates 45˚ clockwise each time.
Rule 2: The total number of shaded squares increases by one each time.





Q19 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

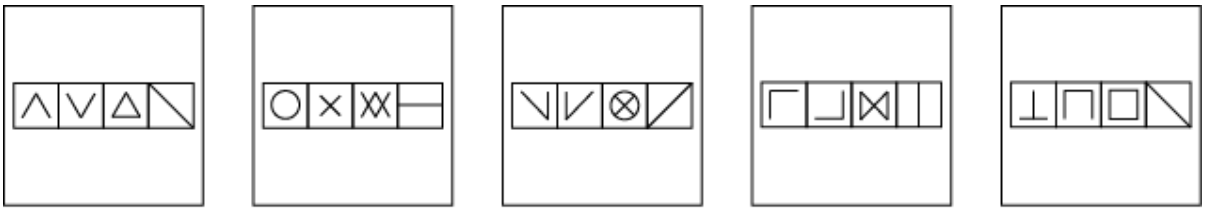
Rule 1: The compass moves three places counterclockwise each time.
Rule 2: The lines on the compass alternate between horizontal and vertical, with respect to the direction of the arrow.

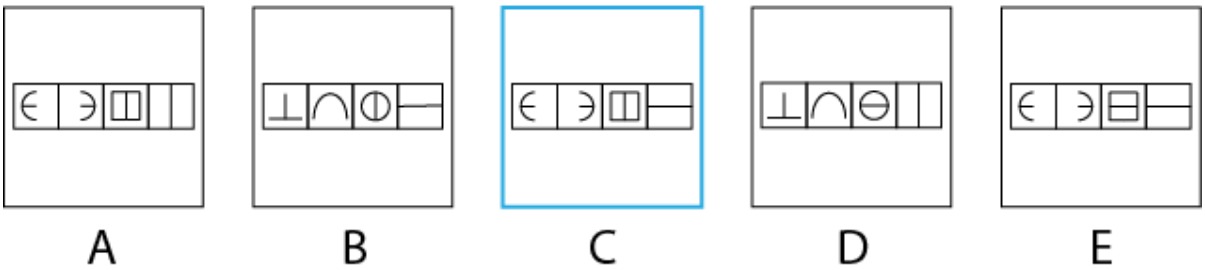
A B C D E

Q20 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of edges on the shape increases by one each time.
Rule 2: The shaded layer of the shape moves outward one place each time, then begins again from the centre.

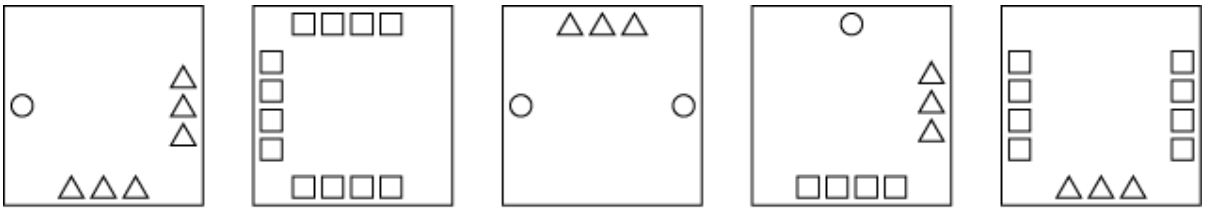


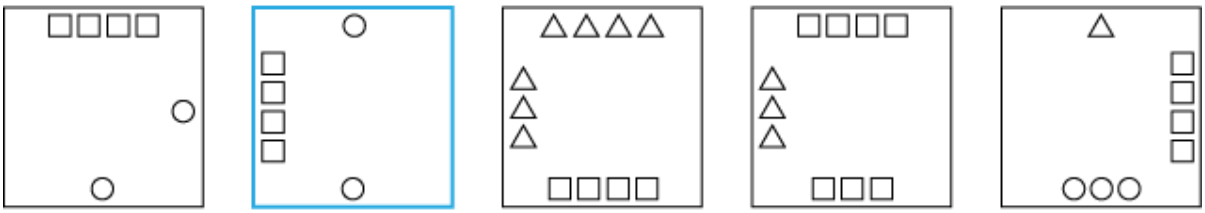


Q21 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The 1st and 2nd symbols combine to form the 3rd symbol of the next box.
Rule 2: The 4th symbol rotates 45˚ counterclockwise each time.



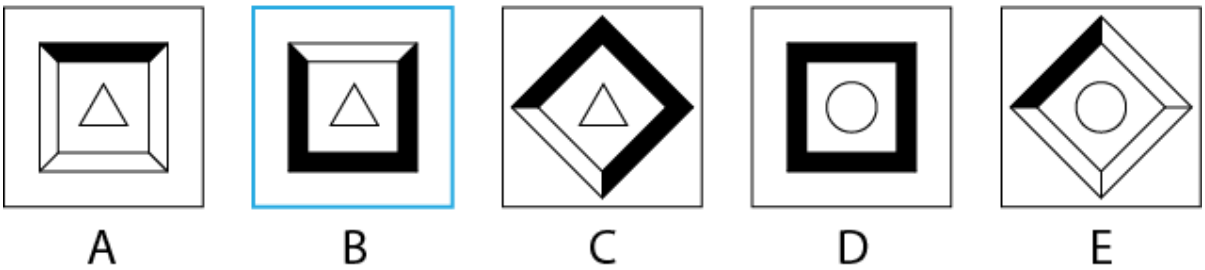


A B C D E

Q22 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

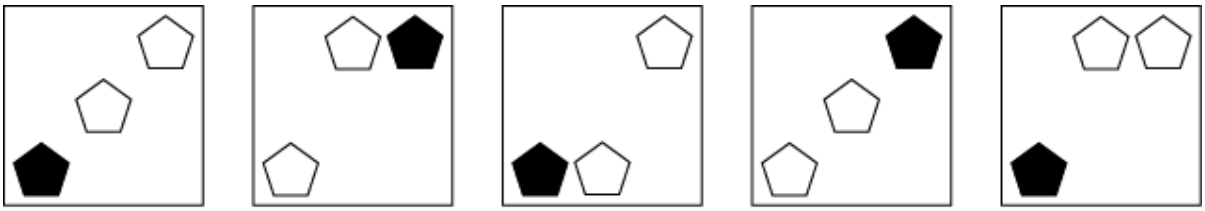
Rule 1: The batches of shapes move one place clockwise each time.
Rule 2: The number of shapes on each batch is equal to the number of edges on that shape.

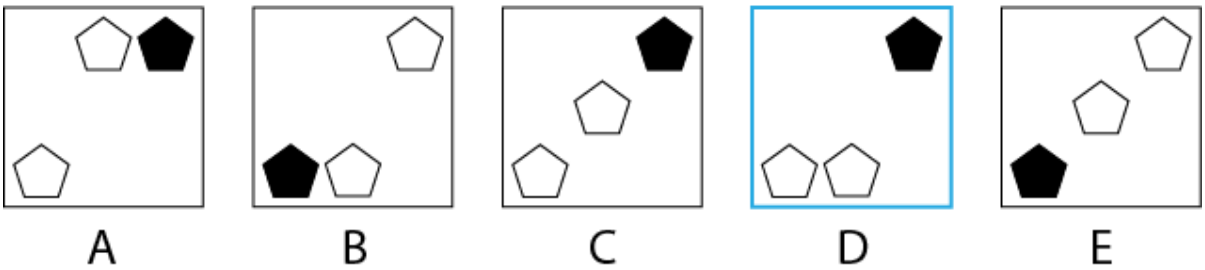


Q23 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The sqaure rotates 45˚ clockwise each time.
Rule 2: The number of edges on the shape in the centre is equal to the number of shaded edges on the large square.

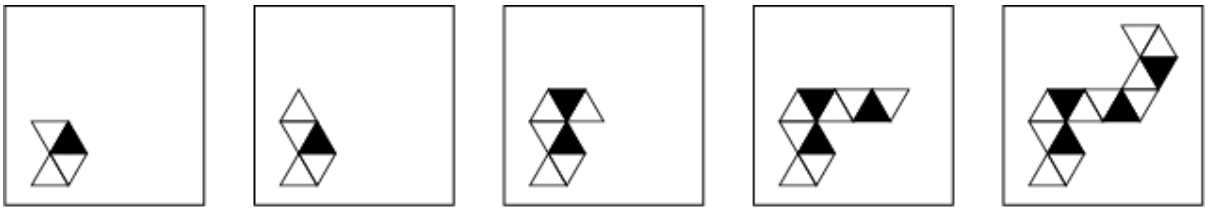


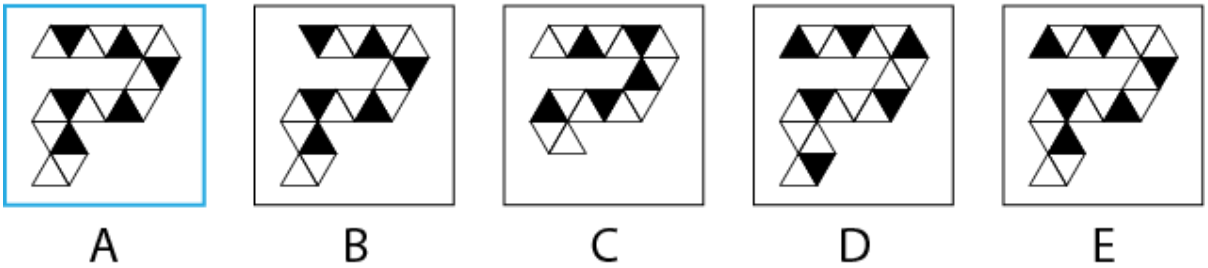


Q24 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The middle pentagon moves up one place each time.
Rule 2: The shaded pentagon alternates between the left and right hand pentagon.

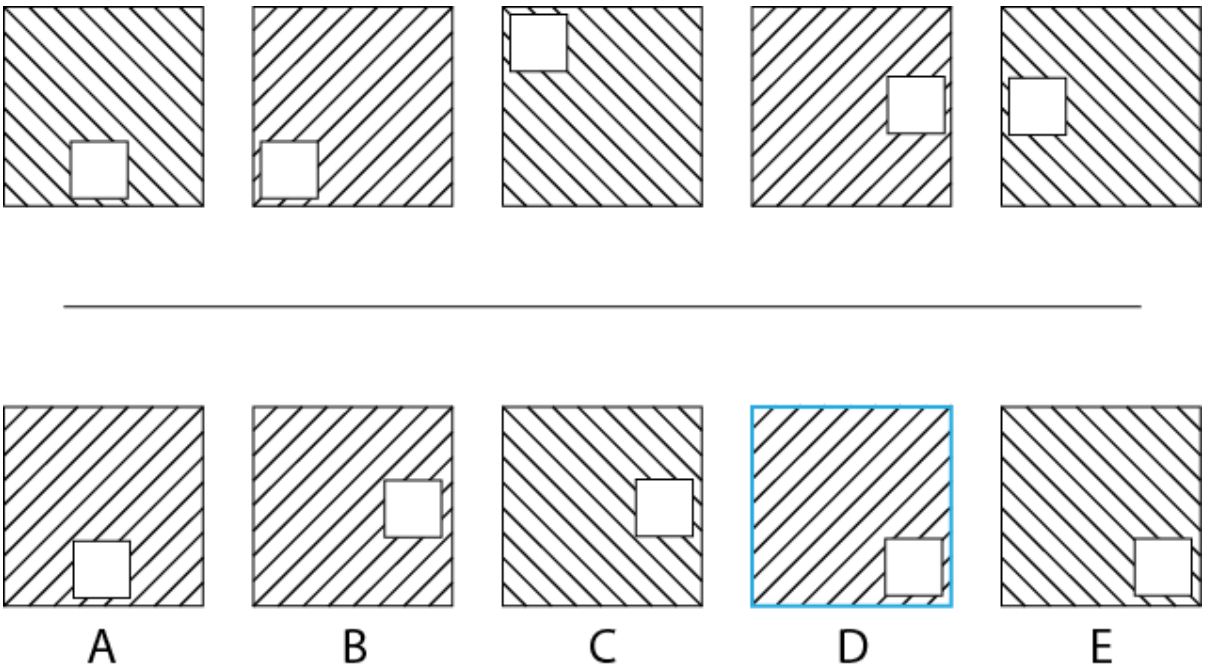




Q25 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: One triangle is added, then two triangles, then three and so on, each time.
Rule 2: Every third triangle is shaded.

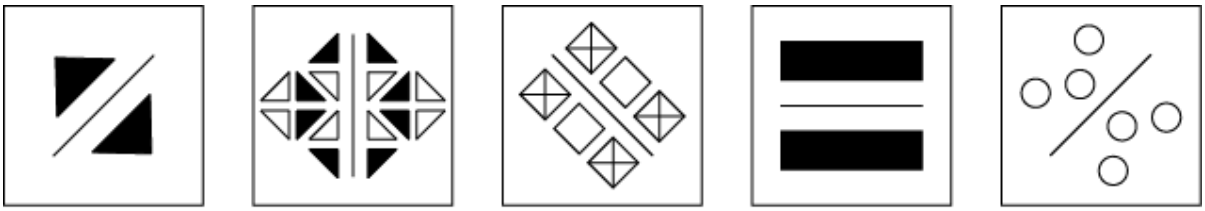


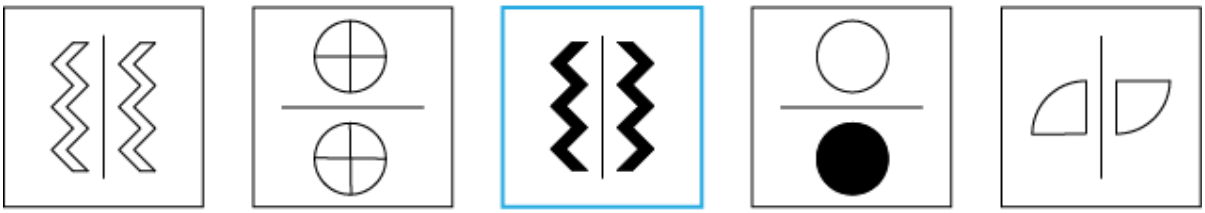
Q26 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The white square moves clockwise one place, then two place, then three places and so on, each time.

Rule 2: The lines alternate between pointing NW-SE and NE-SW.





A B C D E

Q27 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

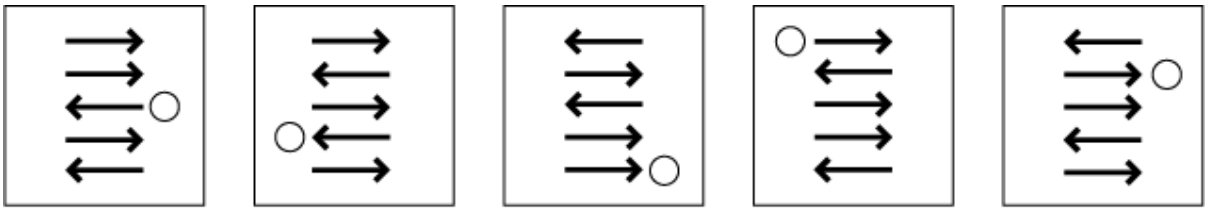
Rule 1: The centre line rotates 45˚ counterclockwise each time.
Rule 2: The symbols are symmetrical about the centre line.

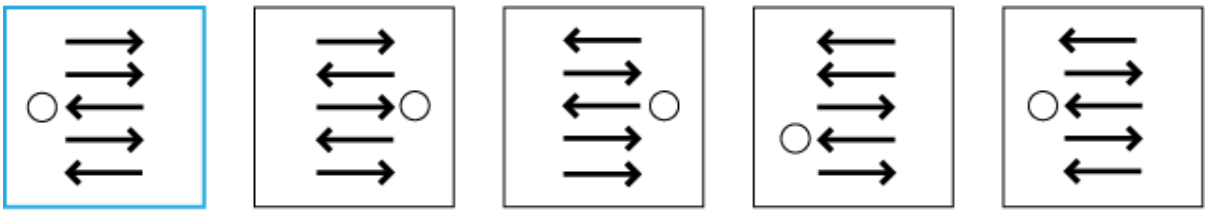
A B C D E

Q28 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shaded segment moves two places counterclockwise each time.
Rule 2: The shaded segment also moves outwards to the next ring each time, then begins again from the centre ring.





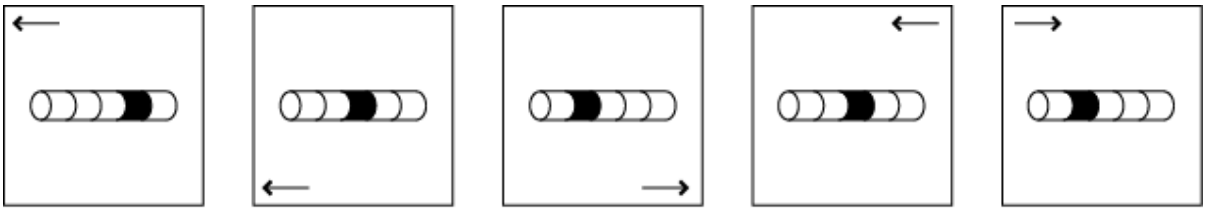
A B C D E

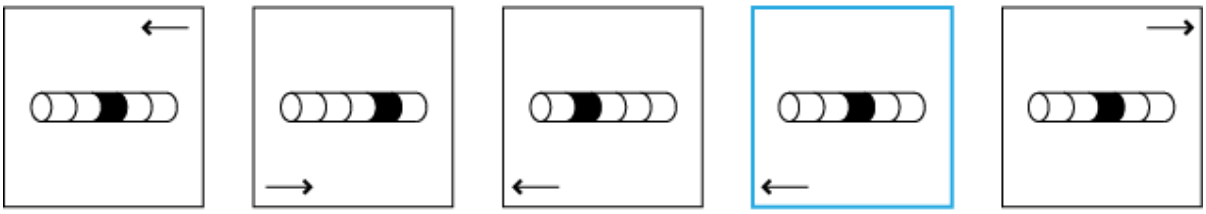
Q29 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: Each arrow moves up one place each time, then begins again from the bottom.

Rule 2: The circle moves down one place each time and alternates side, then begins again from the top.





A B C D E

Q30 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow moves one place counterclockwise each time.
Rule 2: The arrow indicates which segment of the cylinder will be shaded in the following box.

-- End of Test --

ABSTRACT REASONING TEST 9

Instructions

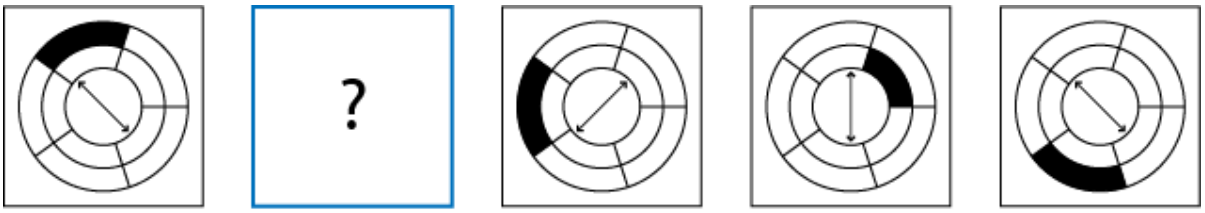
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**



A B C D E

Q1 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

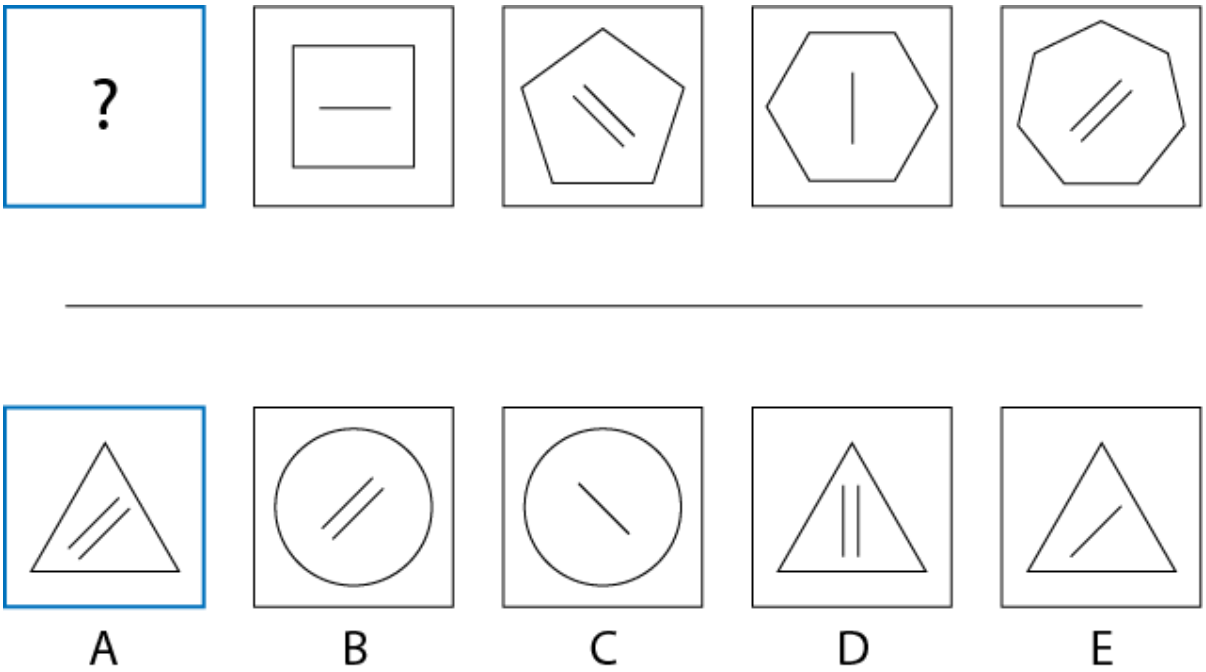
Rule 1: The arrow line in the centre rotates 45˚ counterclockwise each time.
Rule 2: The shaded segment moves two place clockwise each time.
Rule 3: The shaded segment alternates between the outer and inner rings.

A B C D E

Q2 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

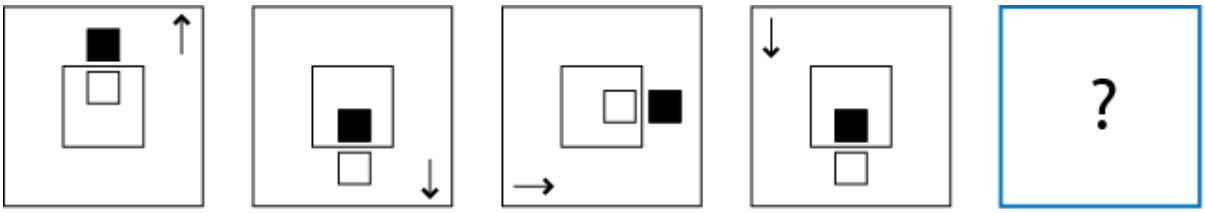
Rule 1: The crossed triangle moves two places counter clockwise each time.
Rule 2: The sections of the crossed triangle alternate between shaded and unshaded each time.
Rule 3: The circled triangle moves one place counter clockwise each time.

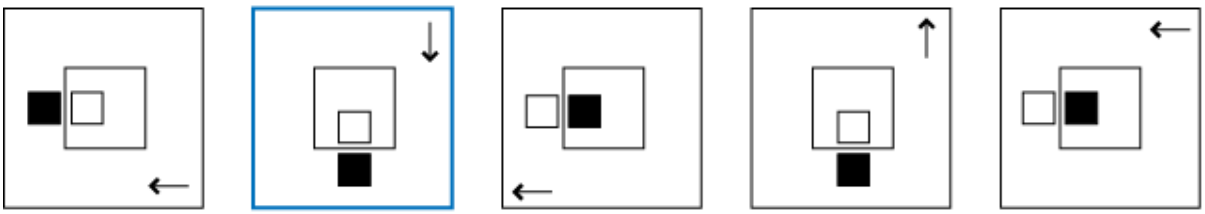


Q3 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of edges on the large shape increases by one each time.
Rule 2: The number of lines inside the large shape alternates between two and one.
Rule 3: The lines rotates 45˚ clockwise each time.



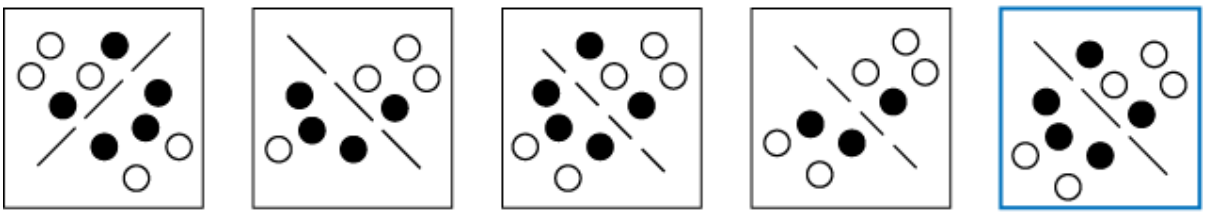


A B C D E

Q4 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The arrow moves one place clockwise to the next corner each time.
Rule 2: The arrow indicates which side the small boxes are positioned.
Rule 3: The small boxes outside and inside the large box alternates between shaded and unshaded.

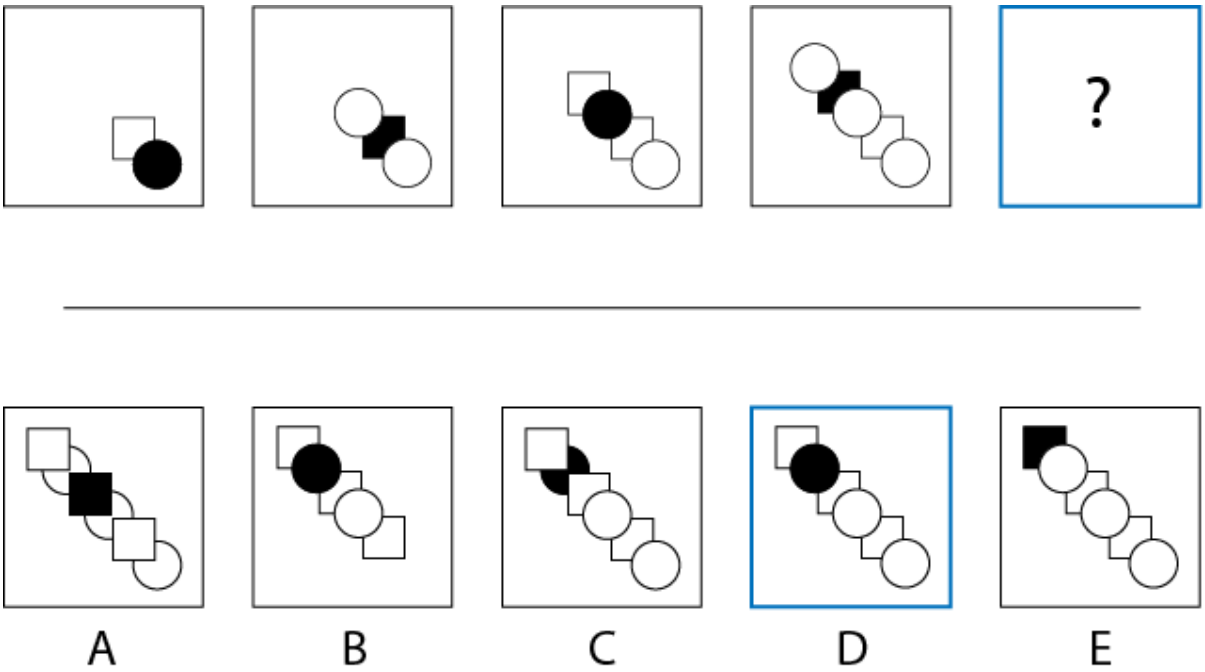


A B C D E

Q5 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

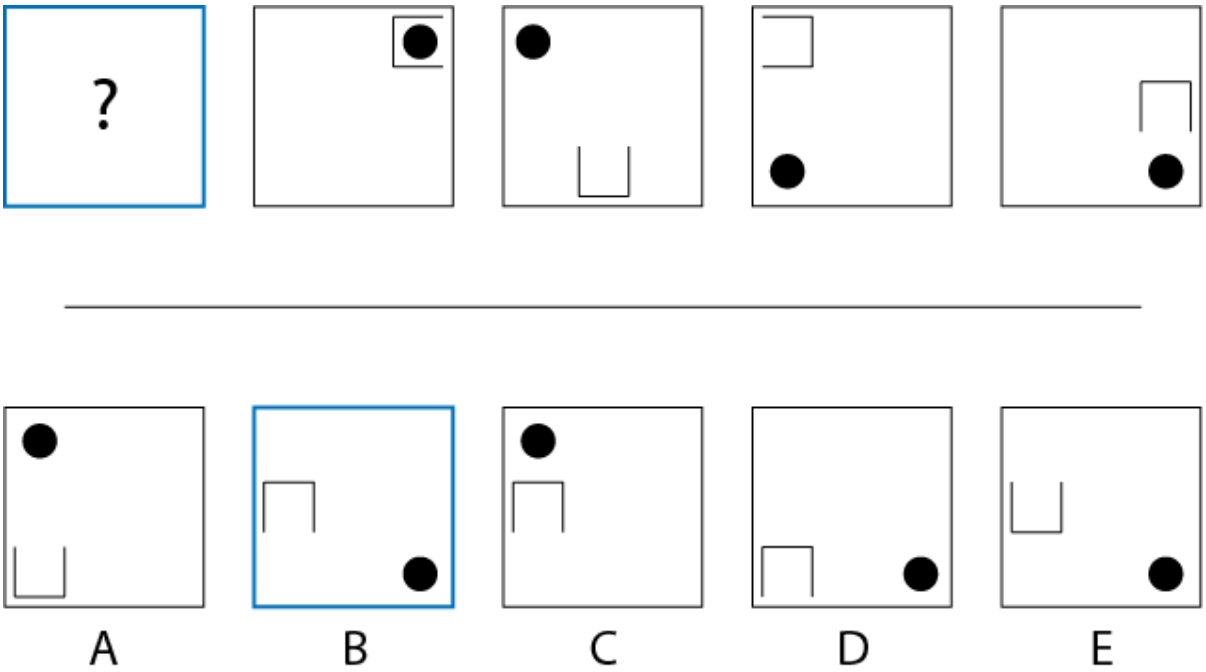
Rule 1: The dividing line rotates 45˚ counterclockwise each time.
Rule 2: The number of lines in the dividing line increases by one each time.
Rule 3: The total number of shaded circles increases by two each time.



Q6 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

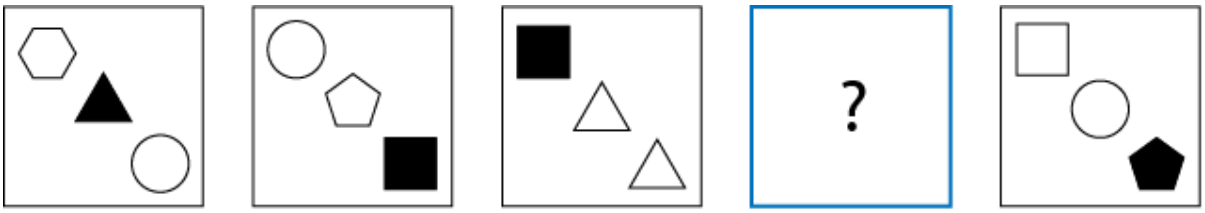
Rule 1: A new shape is added each time, alternating between circle and square.
Rule 2: The squares are in the background, and the circles are in the foreground.
Rule 3: The shaded shape moves up one place each time.

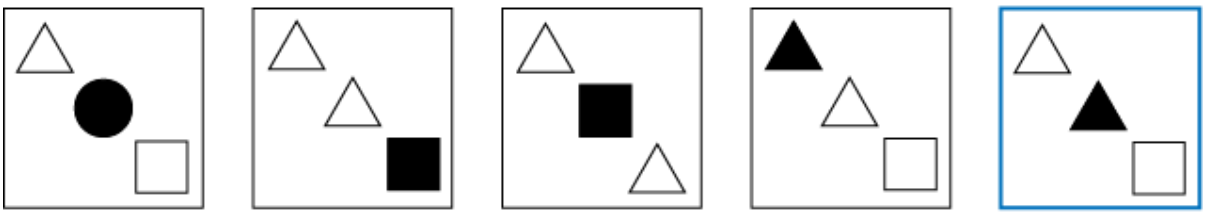


Q7 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The square moves three places clockwise around the box each time.
Rule 2: The missing edge of the square moves one place counter clockwise each time.
Rule 3: The shaded circle moves one place counter clockwise each time.



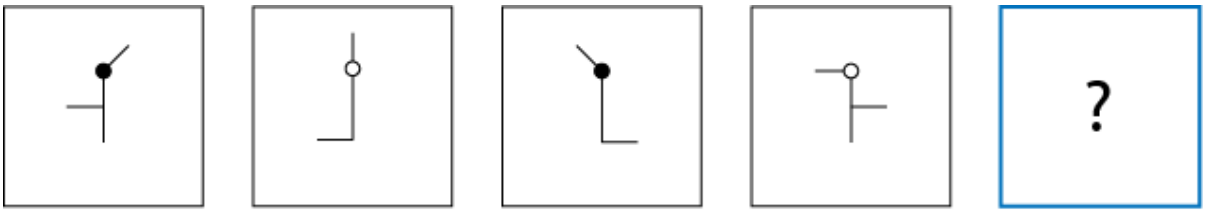


A B C D E

Q8 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shaded shape moves one place to the right each time.
Rule 2: The right hand shape becomes the left hand shape in the next box.
Rule 3: The total number of edges on the shapes is always equal to ten.

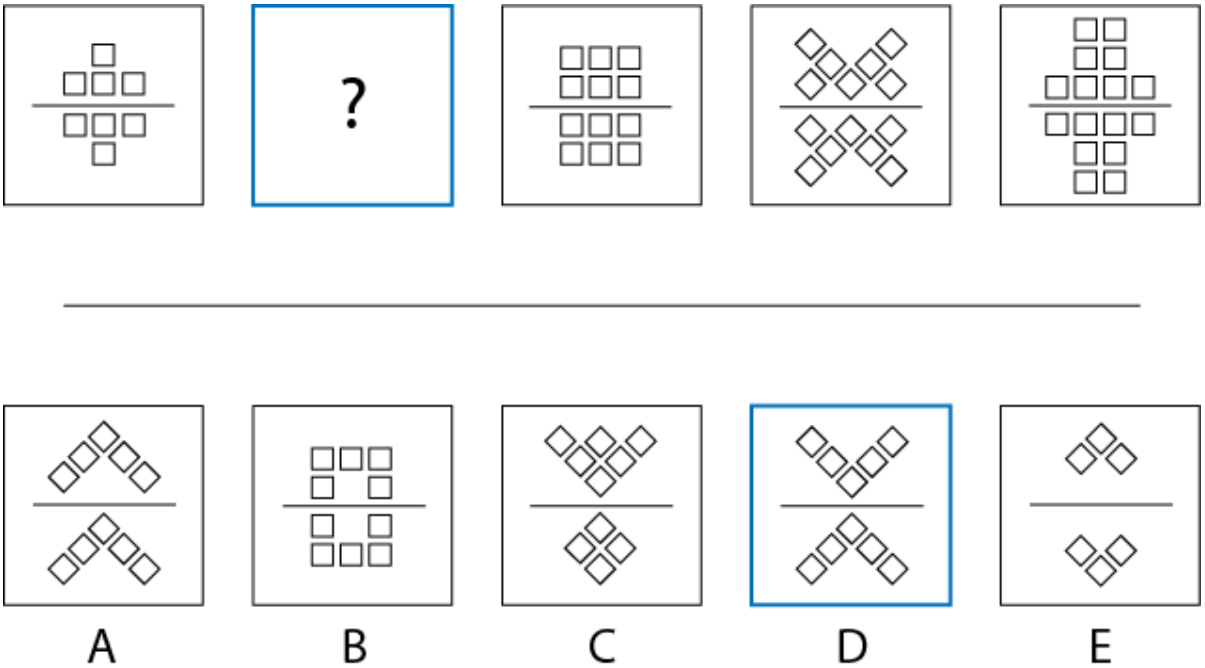


A B C D E

Q9 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

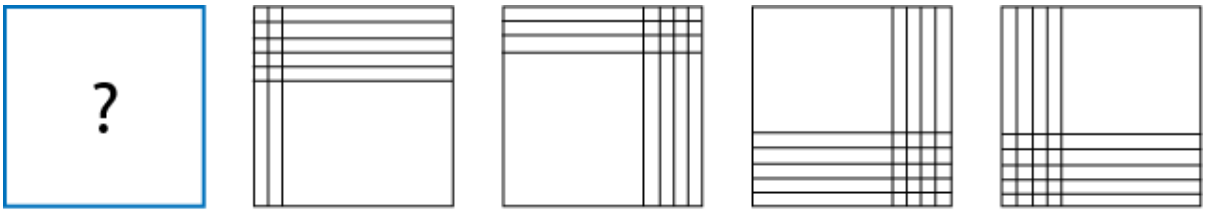
Rule 1: The top line rotates 45˚ counter clockwise around the circle each time.
Rule 2: The circle alternates between shaded and unshaded.
Rule 3: The horizontal line moves one place counter clockwise each time.

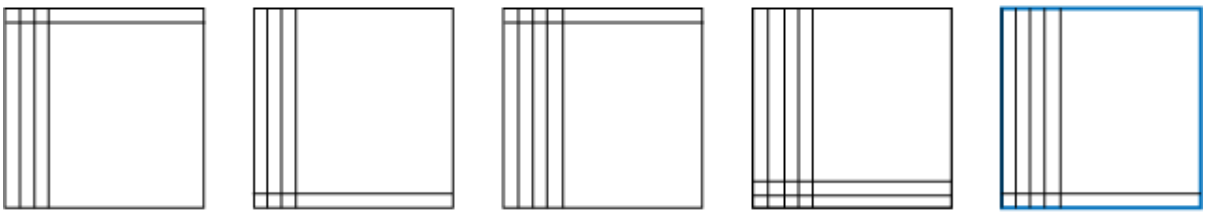


Q10 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shapes alternate between sqaure and diamond.
Rule 2: The total number of shapes increases by two each time.
Rule 3: The shapes are always symmetrical about the horizontal centre line.



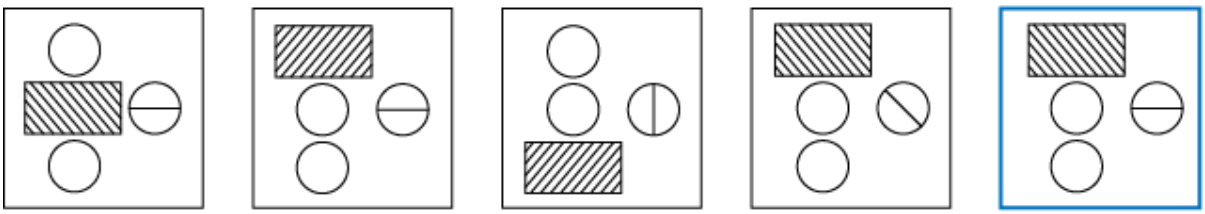


A B C D E

Q11 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: Both batches of lines move one place clockwise around the box each time.
Rule 2: One batch alternates between having four and five lines.
Rule 3: The other batch of lines increases by one each time.

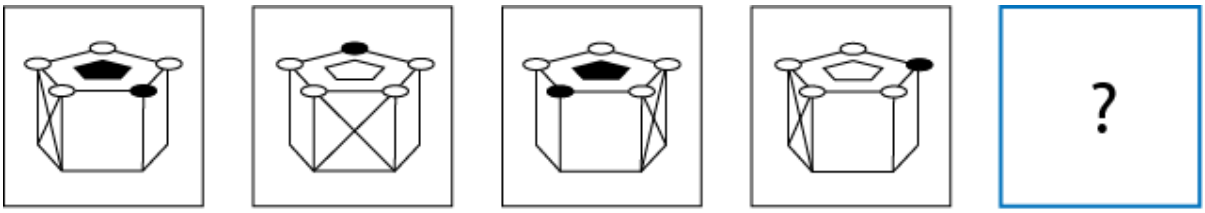


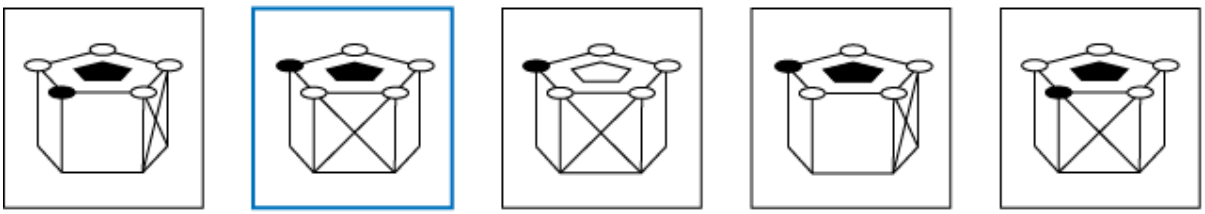
A B C D E

Q12 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The lines in the rectangle alternate direction each time.
Rule 2: The line in the circle rotates 45˚ clockwise each time.
Rule 3: The rectangle alternates between being above and below the circles.



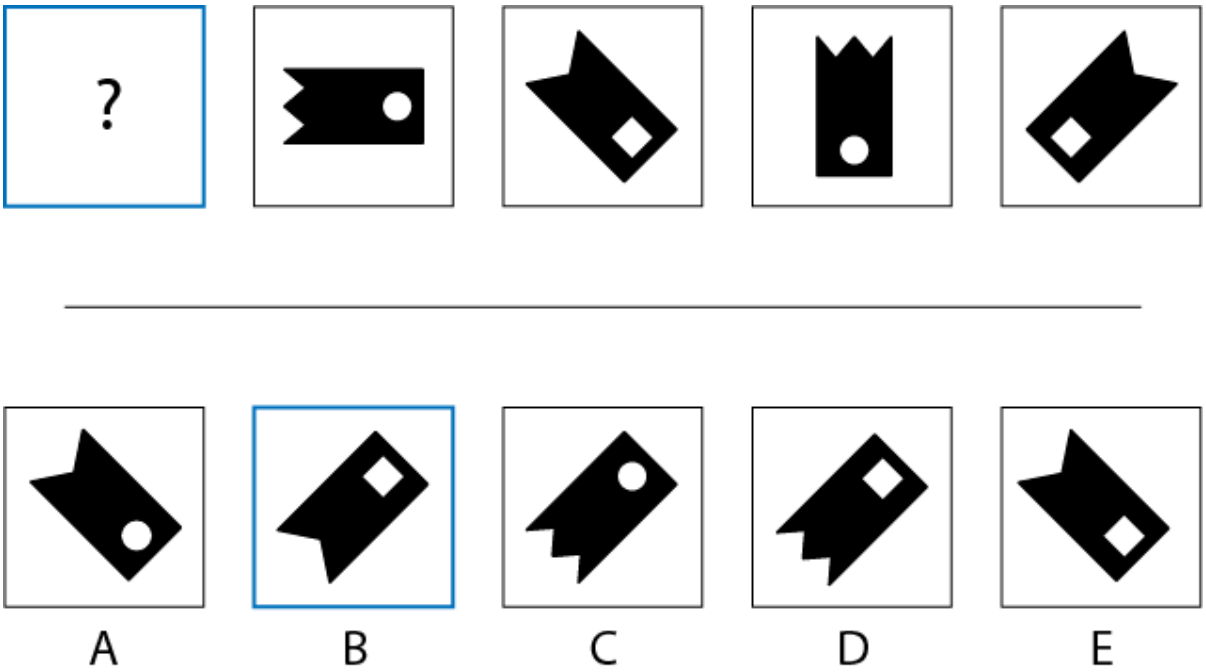


A B C D E

Q13 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

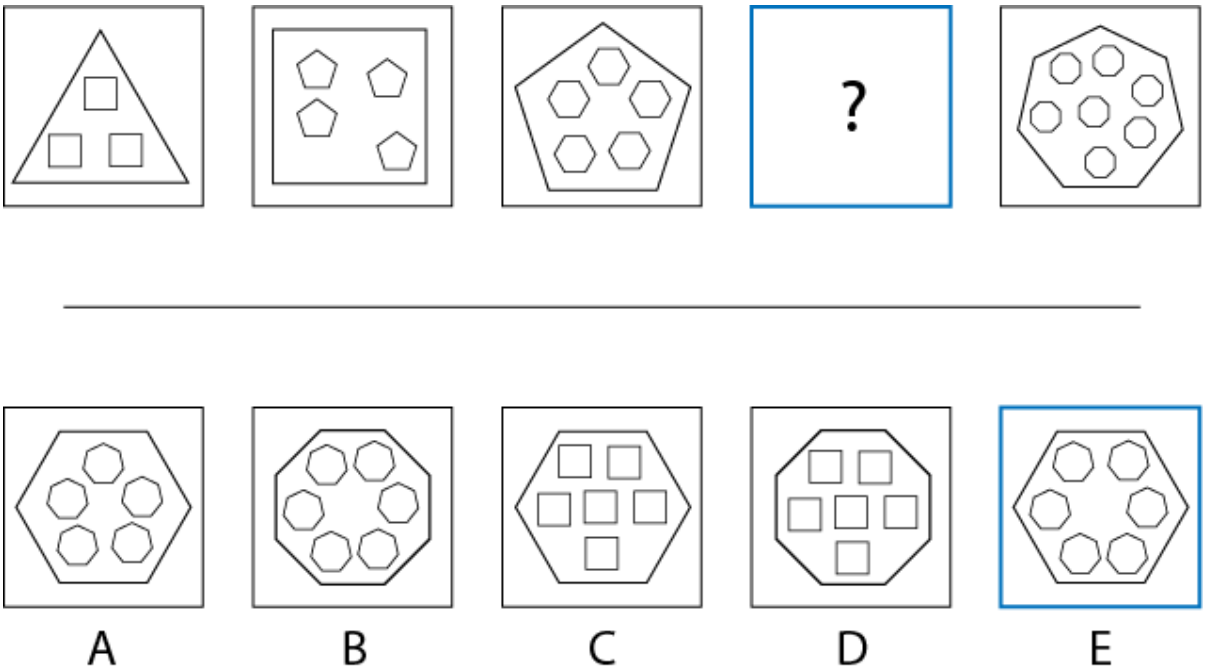
Rule 1: The crossed section of the shape moves one place to the right each time and then begins again from the left.
Rule 2: The shaded circle moves two places counter clockwise each time.
Rule 3: The small pentagon in the centre alternates between shaded and unshaded.



Q14 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

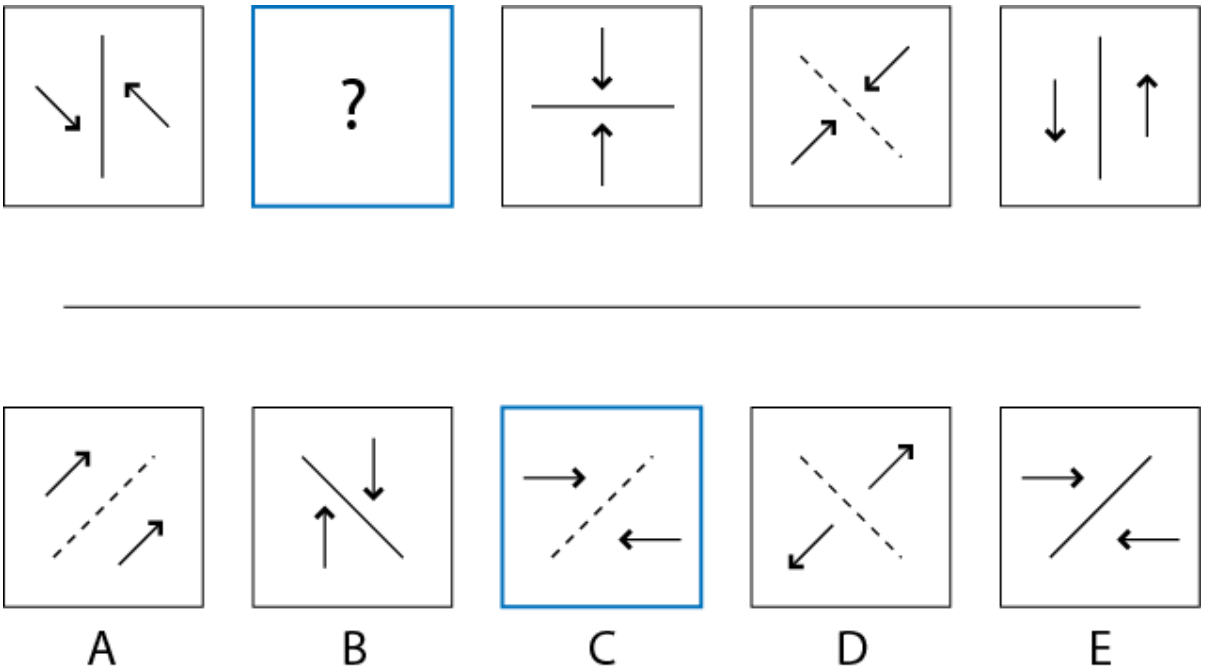
Rule 1: The ribbon rotates 45˚ clockwise each time.
Rule 2: The ribbon alternates between having two and three points at the bottom.
Rule 3: The small unshaded shape alternates between square and circle.



Q15 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

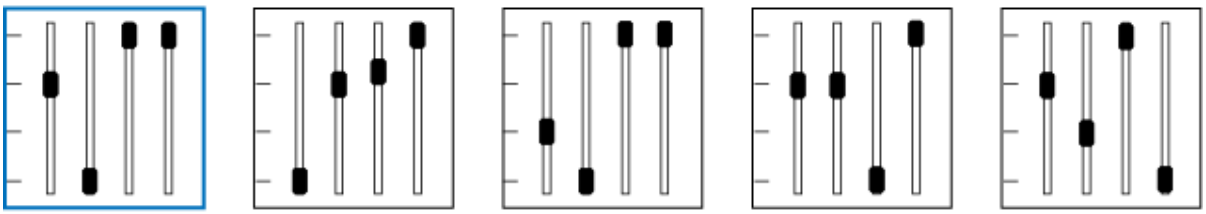
Rule 1: The total number of edges on the large shape increases by one each time.
Rule 2: The small shapes have one more edge that the large shape.
Rule 3: The total number of small shapes is equal to the total number of edges on the large shape.



Q16 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The centre line rotates 45˚ clockwise each time.
Rule 2: The centre line alternates between solid and broken.
Rule 3: The arrows always point in opposite directions.

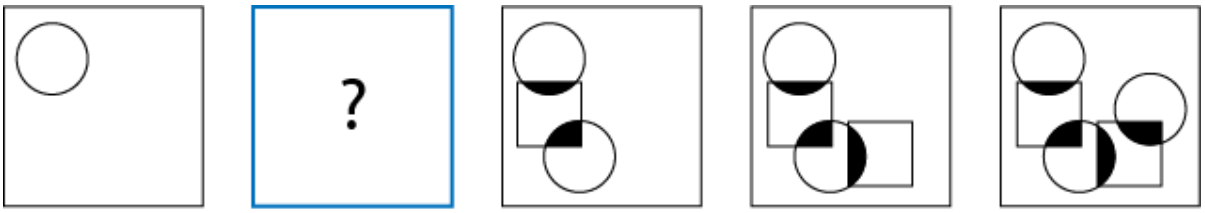


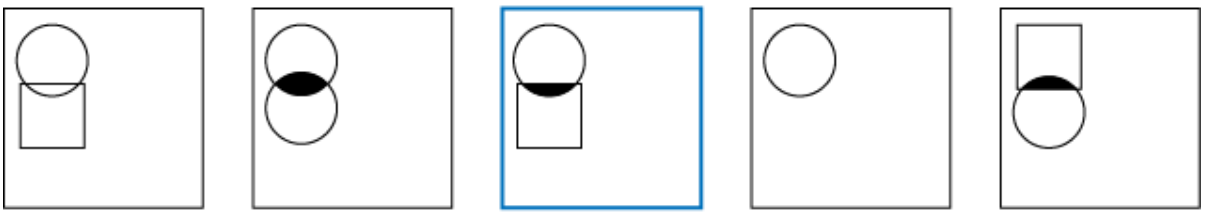
A B C D E

Q17 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The first and fourth bar moves up one place each time.
Rule 2: The second bar moves down one place each time.
Rule 3: The third bar alternates between top and bottom.



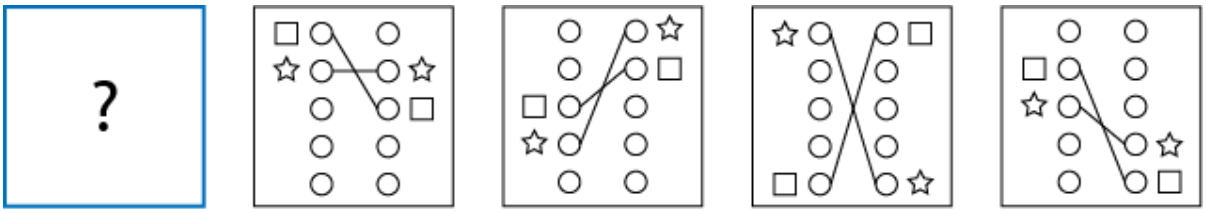


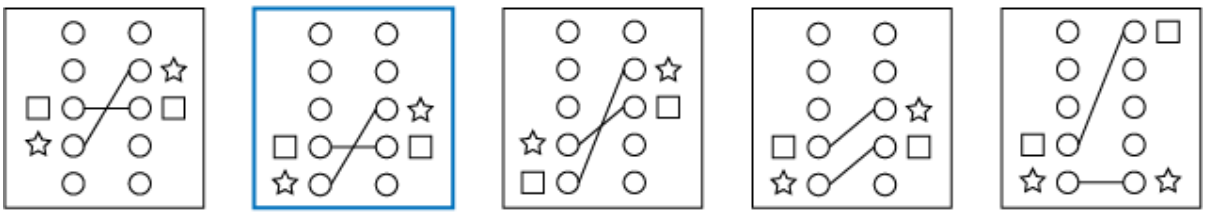
A B C D E

Q18 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: A new shape is added each time.
Rule 2: The new shape alternates between a square and a circle.
Rule 3: The overlapping sections of the shapes are shaded.





A B C D E

Q19 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

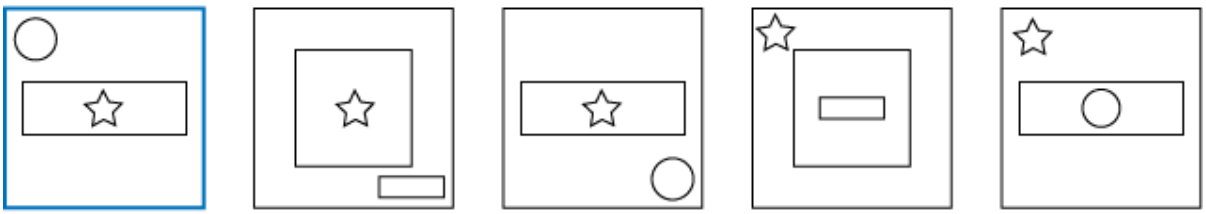
Rule 1: The left side square and star move down two places each time.
Rule 2: The right sided square and star move up on place each time.
Rule 3: The circles next to the squares are linked, and the circles next to the stars are linked.

A B C D E

Q20 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shaded bar moves one place counter clockwise around the box each time.
Rule 2: The parallel lines in the circle rotate 45˚ counter clockwise each time.
Rule 3: The circle ring alternates between shaded and unshaded.

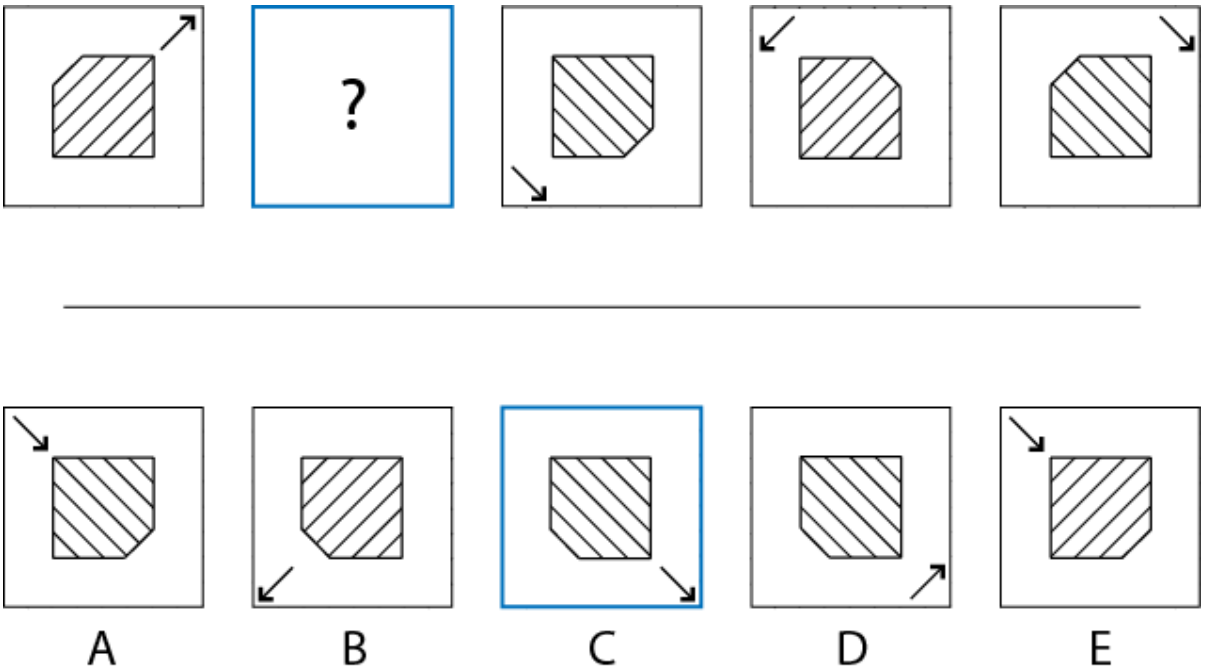


A B C D E

Q21 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

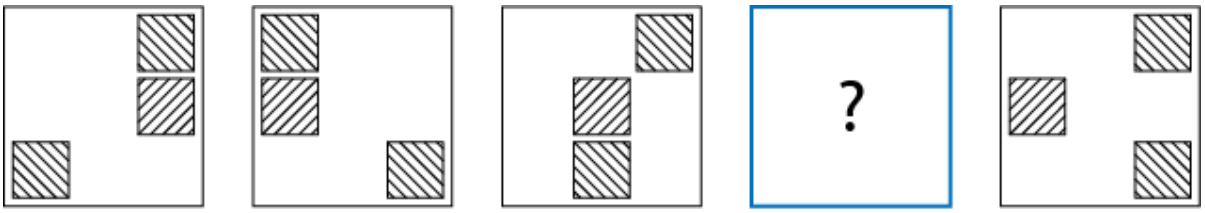
Rule 1: The small centre shape becomes the large shape of the next box.
Rule 2: The large shape becomes the small corner shape of the next box.
Rule 3: The corner shape moves one place counter clockwise each time.



Q22 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The missing corner of the square moves one place counter clockwise each time.
Rule 2: The arrow moves one place clockwise each time.
Rule 3: The arrow indicates the orientation of the lines.

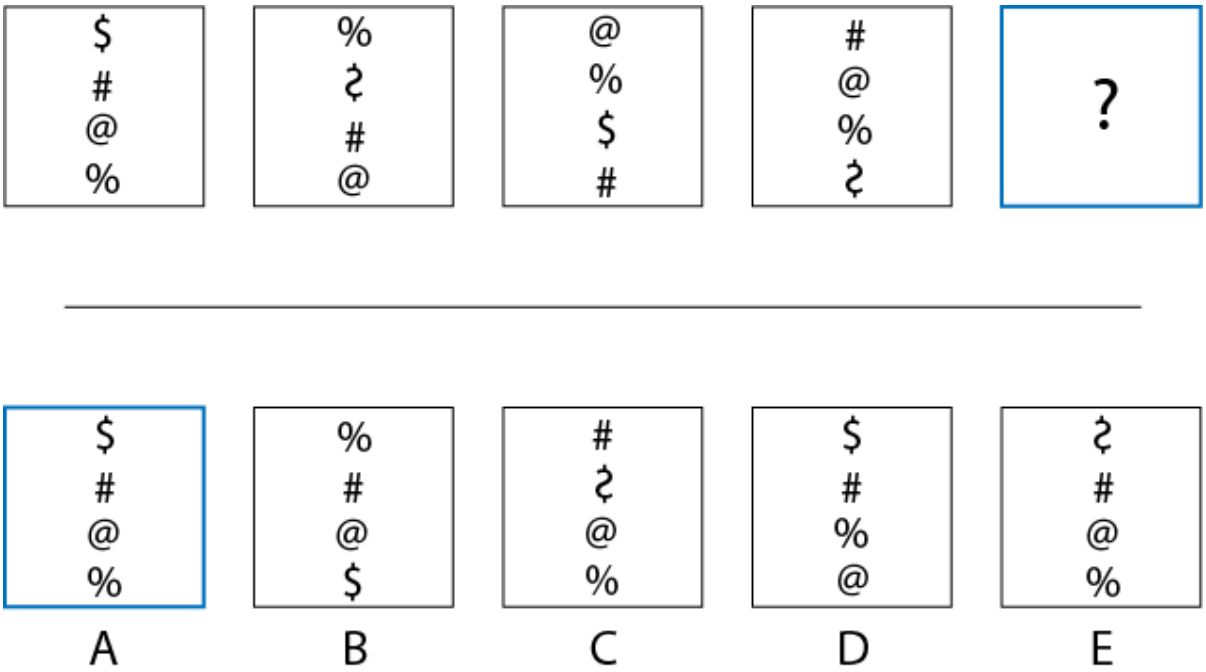


A B C D E

Q23 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

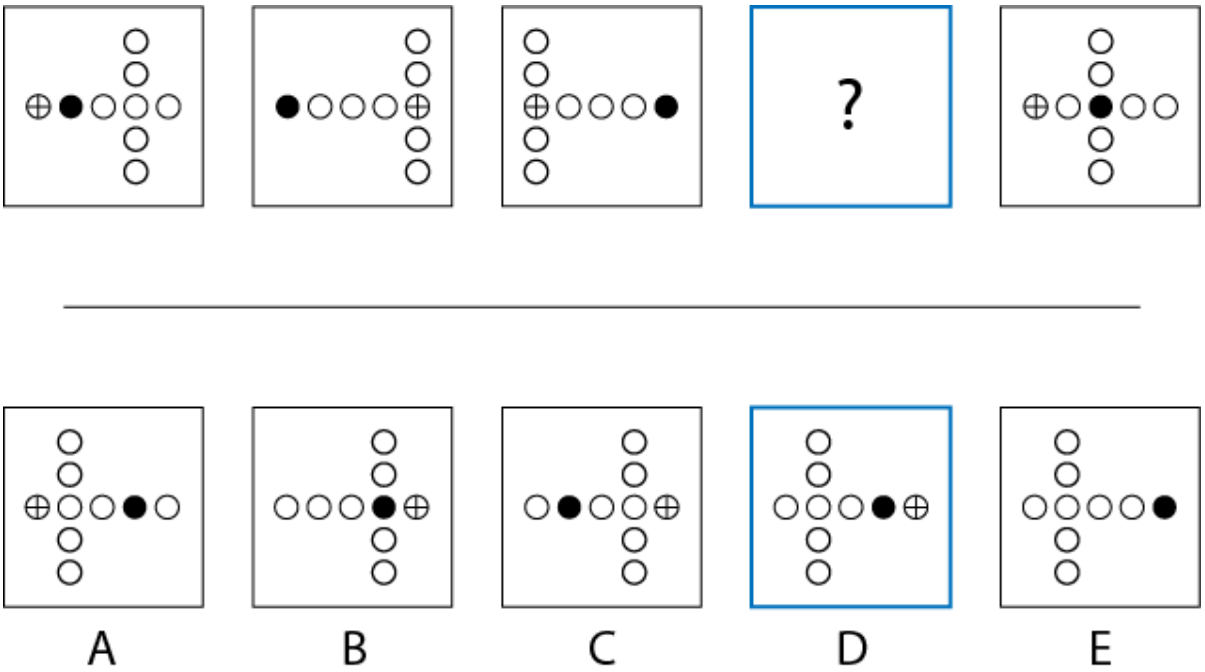
Rule 1: The top square alternates between being on the left and right.
Rule 2: The middle box moves one place to the right each time.
Rule 3: The bottom box moves one place to the left each time.



Q24 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

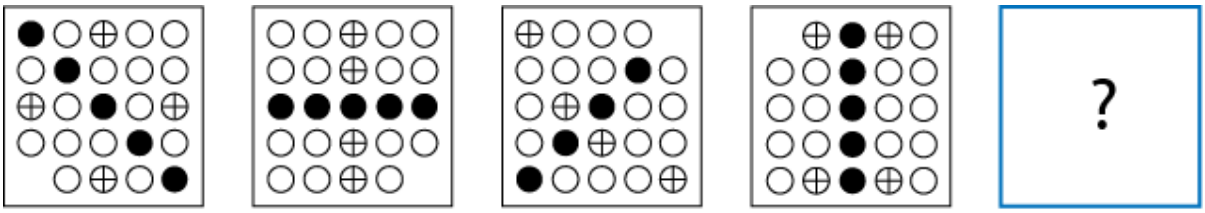
Rule 1: The bottom symbol becomes the top symbol of the next box.
Rule 2: The remaining symbols moves down one place each time.
Rule 3: The ‘$’ symbol alternates between facing right and left.

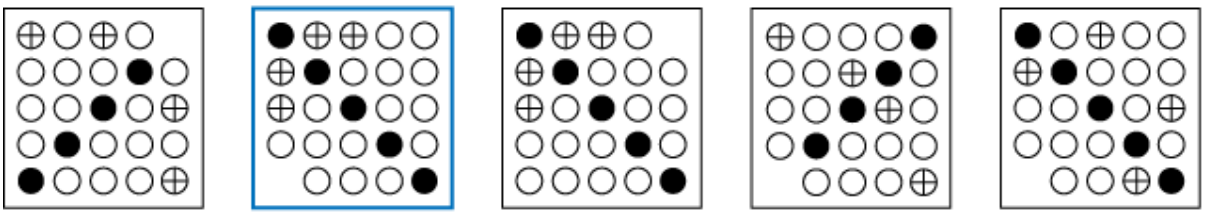


Q25 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The shaded circle moves one place to the left each time.
Rule 2: The crossed circle alternates between the left and rightmost circles.
Rule 3: The vertical column of circles moves one place to the right each time.



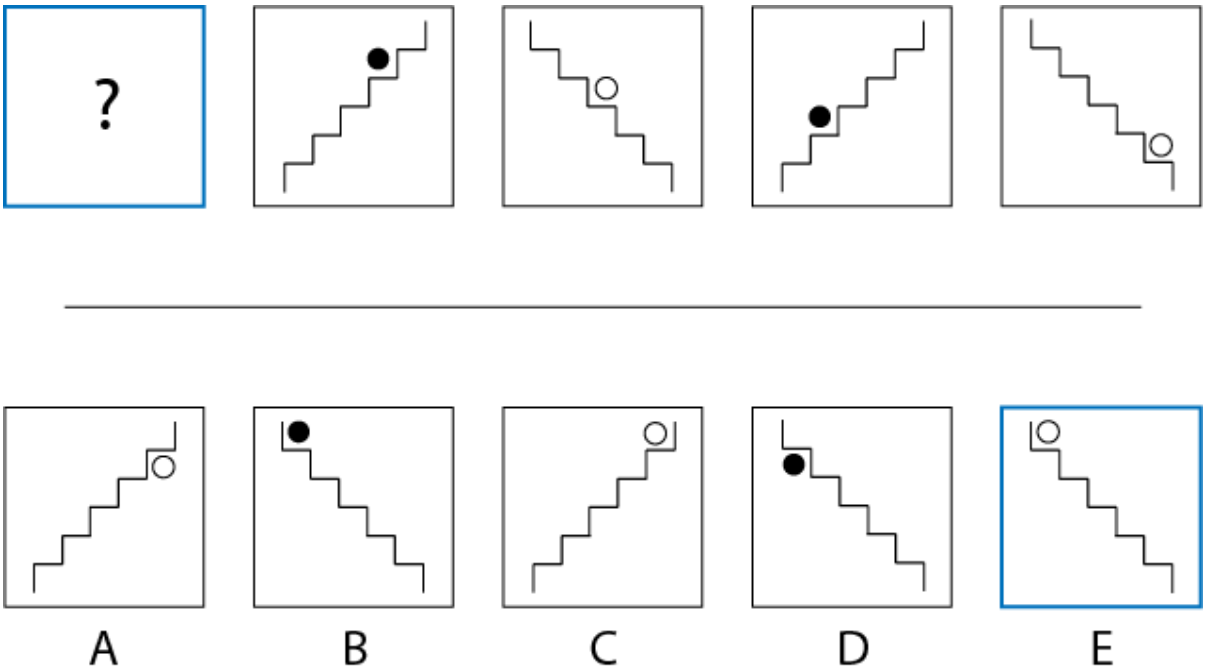


A B C D E

Q26 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

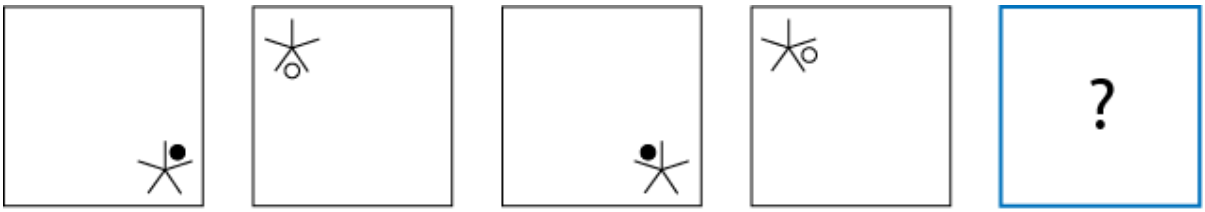
Rule 1: The row of shaded circles rotates 45˚ counter clockwise each time.
Rule 2: The crossed circles are always symmetrical about the shaded row.
Rule 3: The missing corner circle moves one place counter clockwise each time.

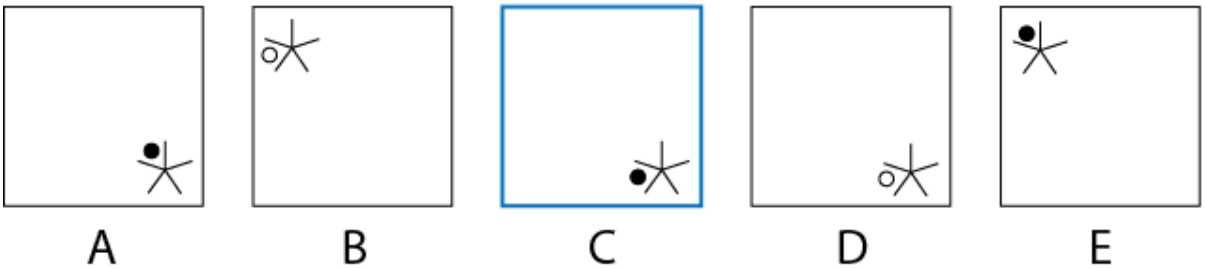


Q27 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The staircase alternates between pointing NW-SE and NE-SW.
Rule 2: The circle moves down one step each time.
Rule 3: The circle alternates between unshaded and shaded.





Q28 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

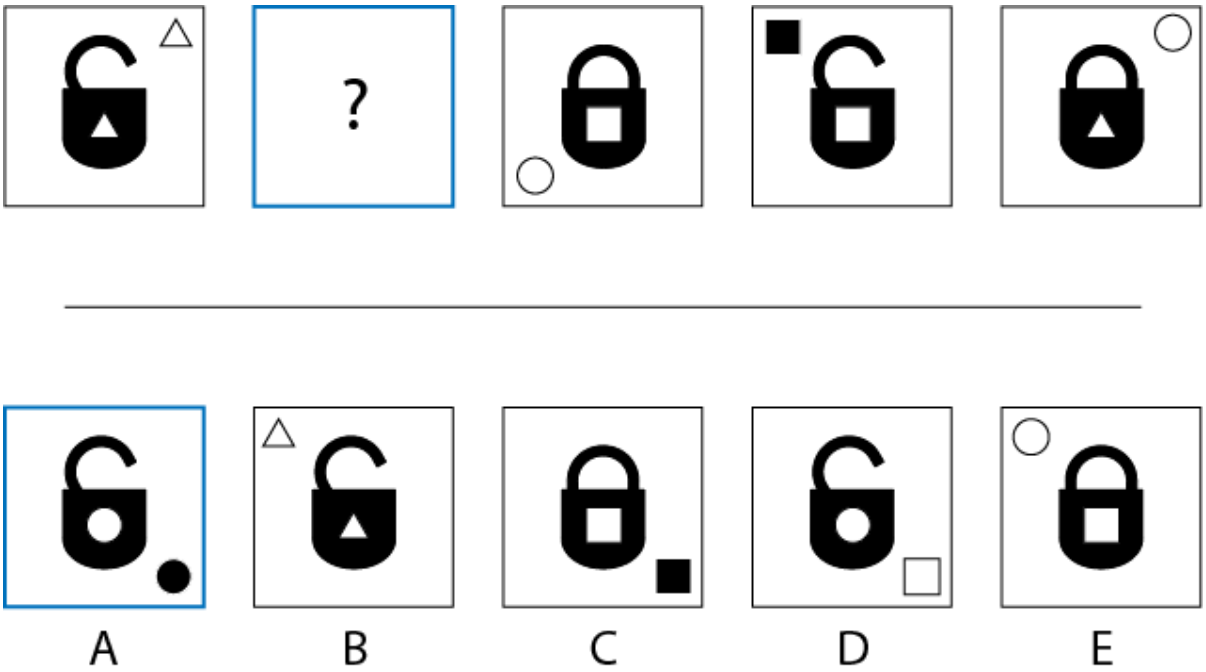
Rule 1: The symbol alternates between the bottom right and the top left hand corner.
Rule 2: The circle moves two place clockwise around the star each time.
Rule 3: The circle alternates between shaded and unshaded.

A B C D E

Q29 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The total number of stars decreases by one each time.
Rule 2: The total number of edges on the unshaded shapes is equal to the total number of stars.
Rule 3: The unshaded shapes moves one place counter clockwise to the next corner each time.



Q30 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

Rule 1: The outer shape moves one place clockwise to the next corner each time.
Rule 2: The outer shape alternates between unshaded and shaded.
Rule 3: The padlock opens when the outer shape is the same as the padlock shape.

-- End of Test --

ABSTRACT REASONING TEST 10

Instructions

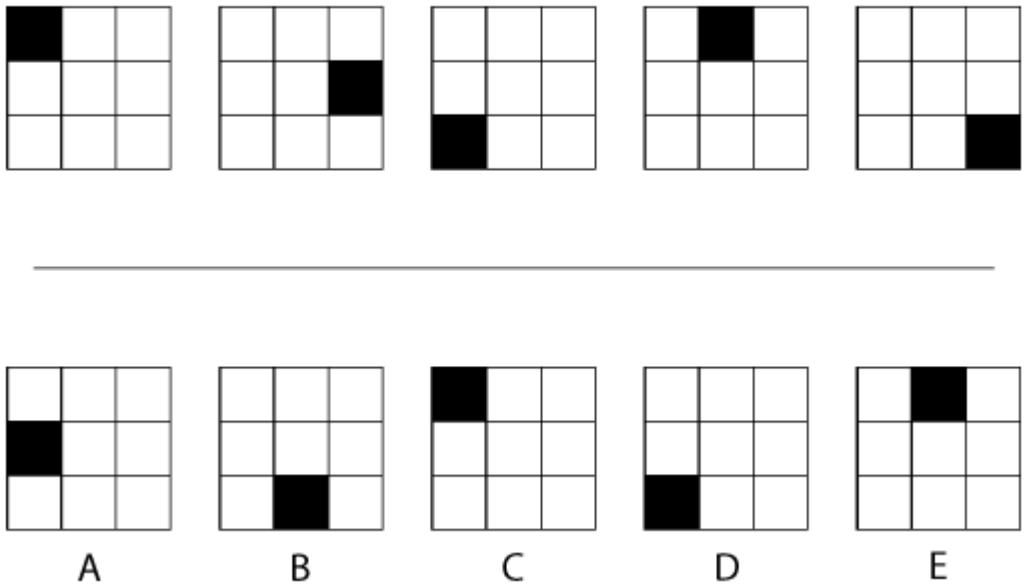
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

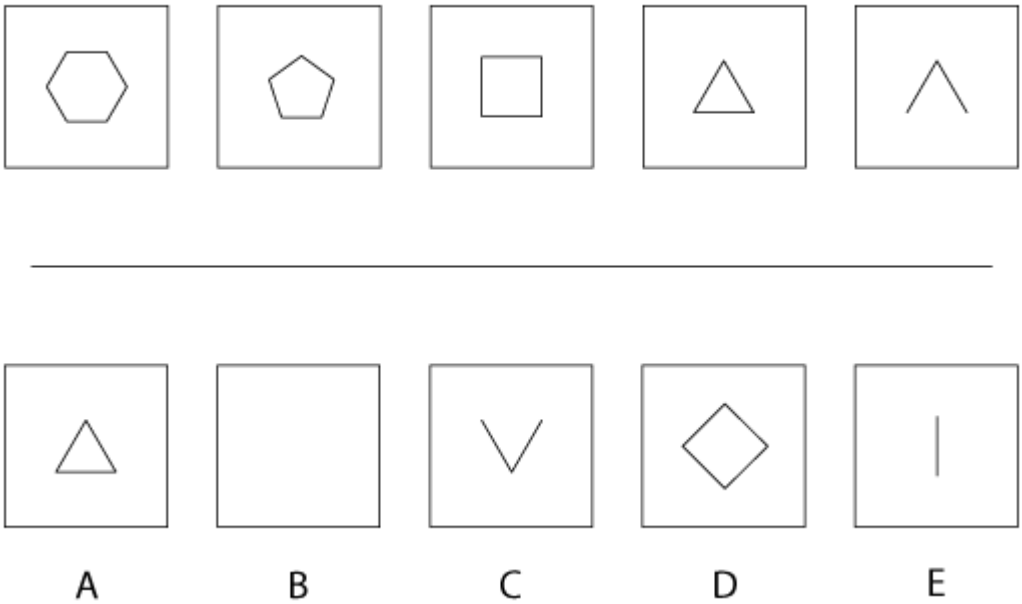


Q1 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is A

One Rule: Each step, the shaded square moves 3 squares clockwise round the edge of the figure.

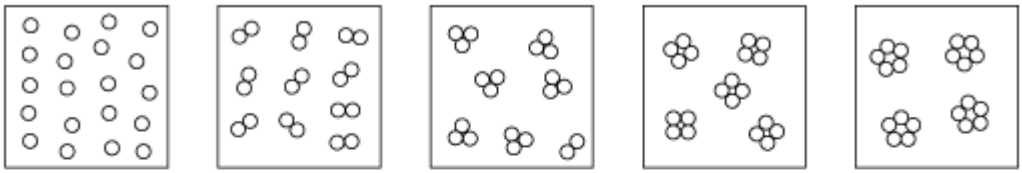


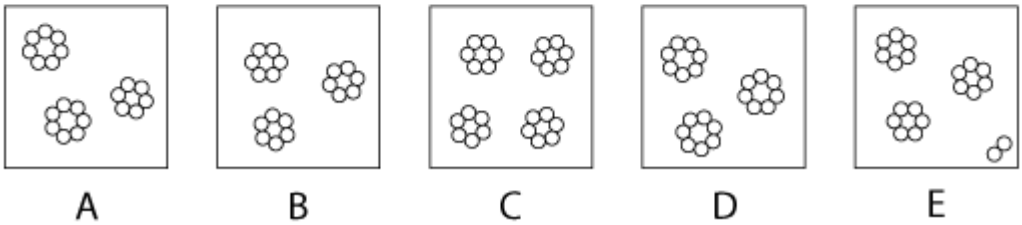
Q2 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is E

One Rule: The shape in the centre comprises 1 fewer straight line every time.



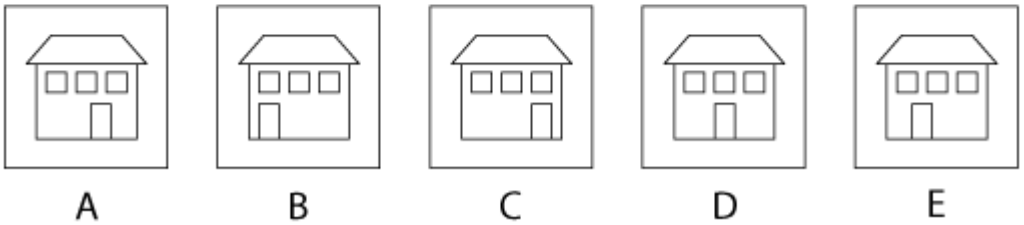


Q3 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is E

One Rule: The number of circles that are grouped together increases by one every time, with the final group containing all the circles that do not fit into a whole group.

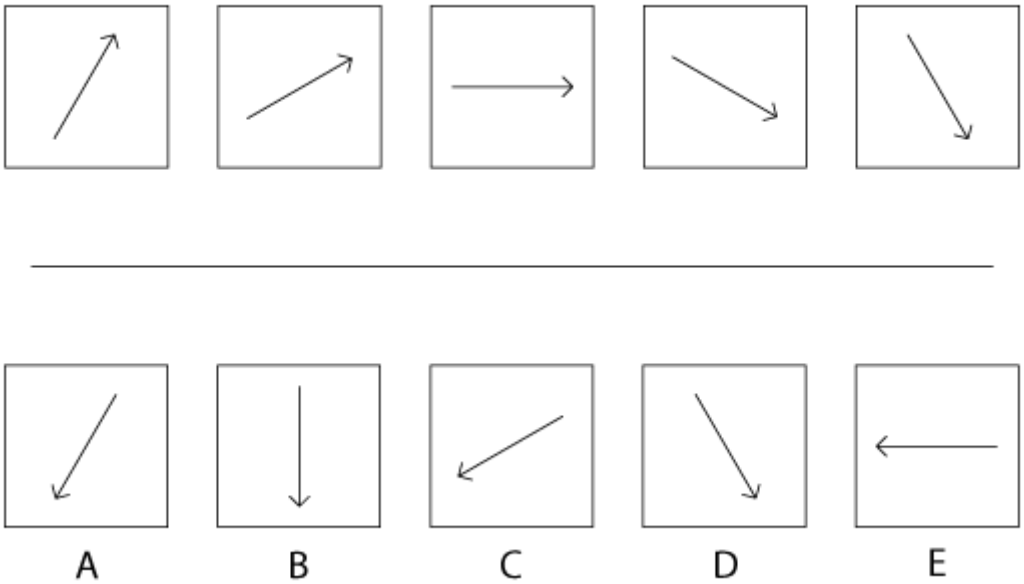


Q4 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is C

One Rule: The door moves to the right, centre, left then centre, always in line with the window immediately above it, and then the pattern repeats.

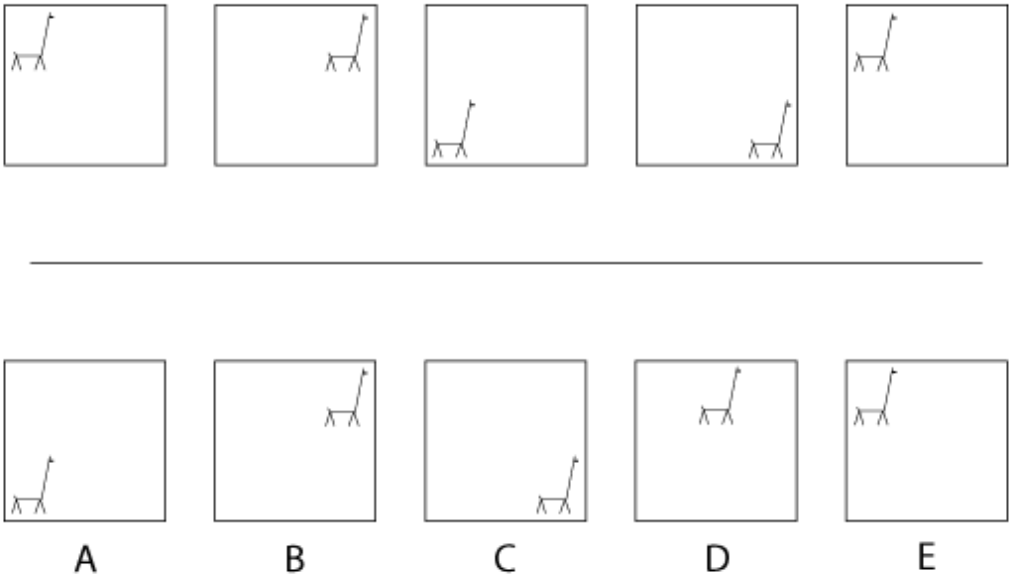


Q5 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is B

One Rule: The direction of the arrow rotates by 30° each time.

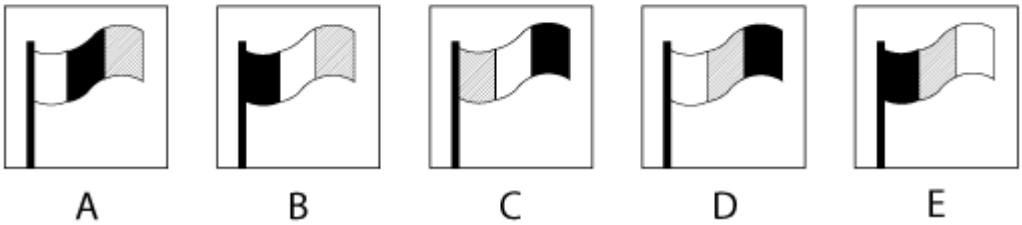


Q6 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is B

One Rule: The matchstick giraffe visits the corners in the order top left, top right, bottom left, bottom right. The sequence then repeats.

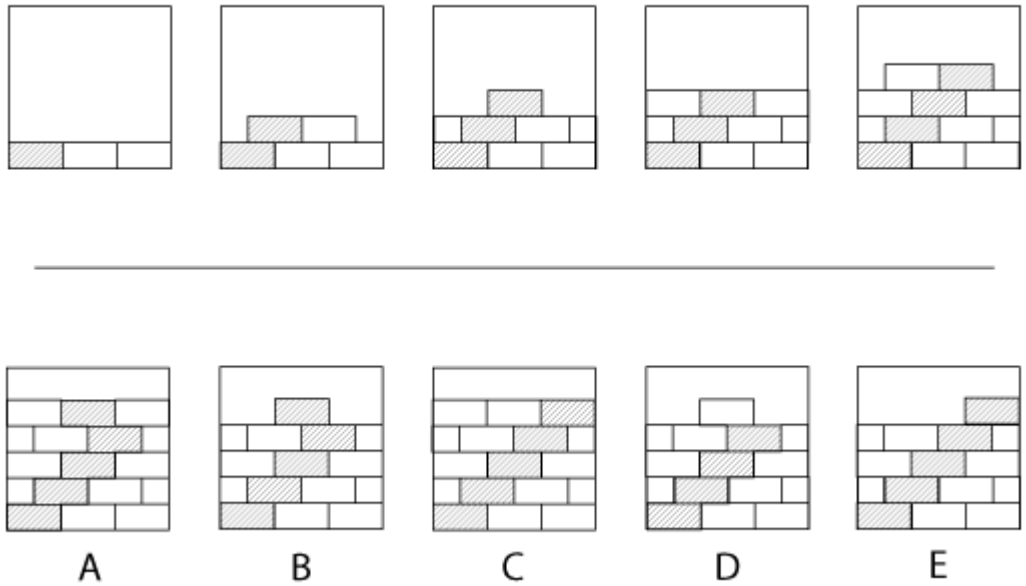


Q7 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is D

First Rule: The shading type furthest from the flagpole on one figure becomes the shading closest to the flagpole on the next figure, and every other form of shading moves one band to the right.



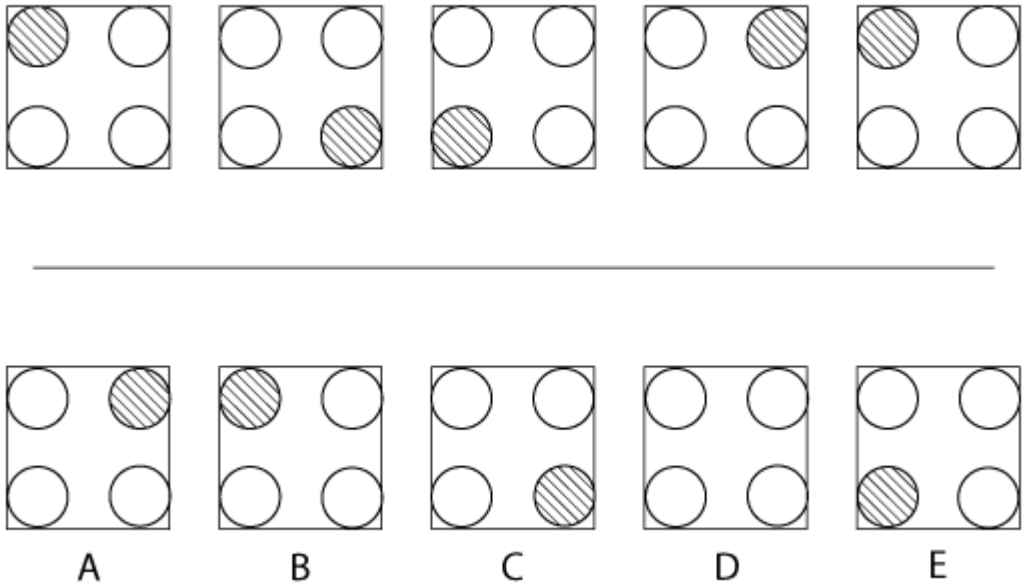
Q8 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is D

First Rule: Two bricks are added each time, starting from the centre and working outwards. Each row is completed before the next is started, and addition of two half bricks counts as adding one whole brick.

Second Rule: Bricks on the bottom left to top right diagonal have upward sloping cross-hatching.

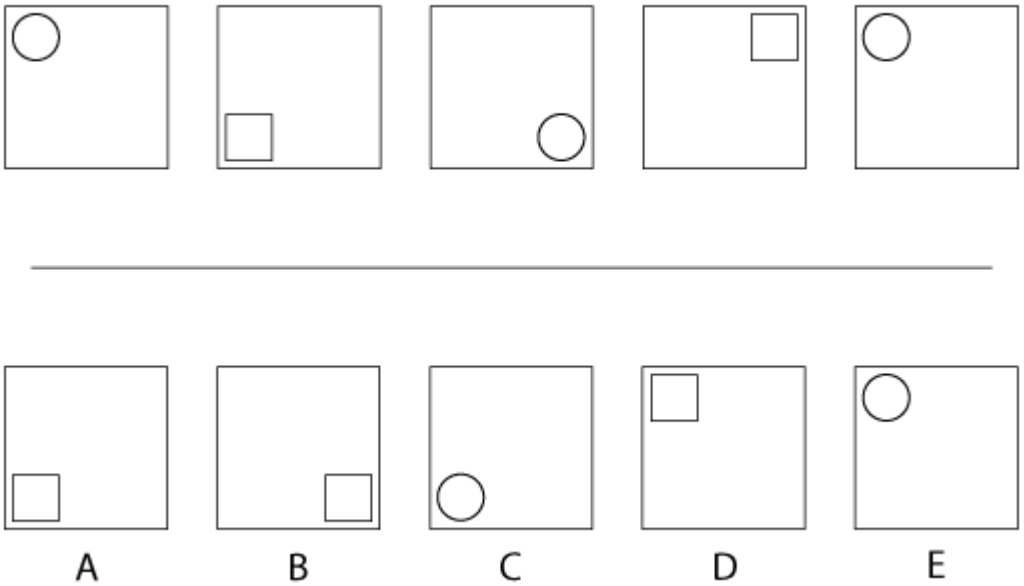


Q9 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is C

One Rule: The downward sloping cross-hatching follows the sequence top left circle, bottom right circle, bottom left circle, top right circle. This sequence then repeats.



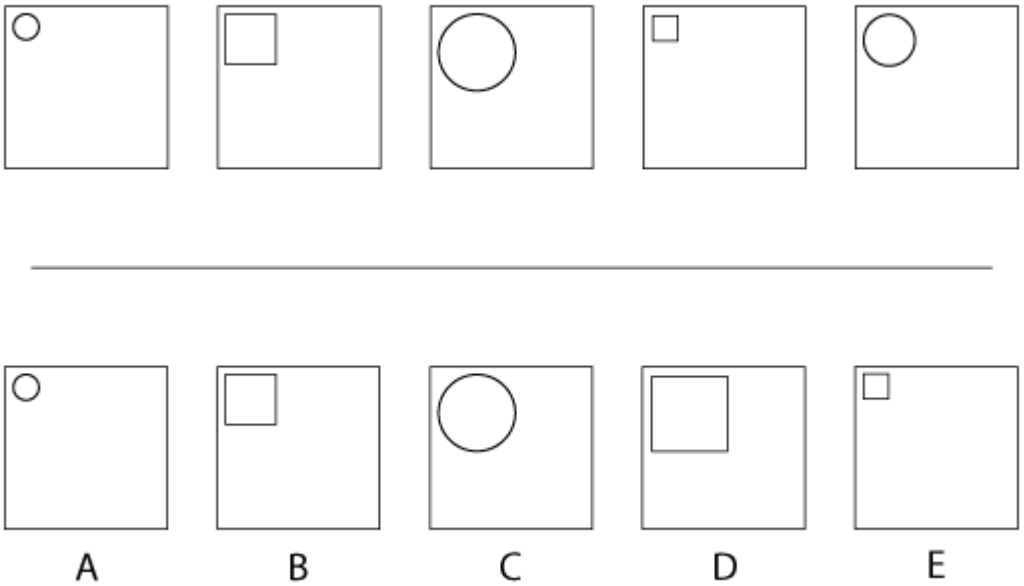
Q10 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is A.

Rule 1: The shapes move one corner anticlockwise each time.

Rule 2: The shapes alternate between circle and square



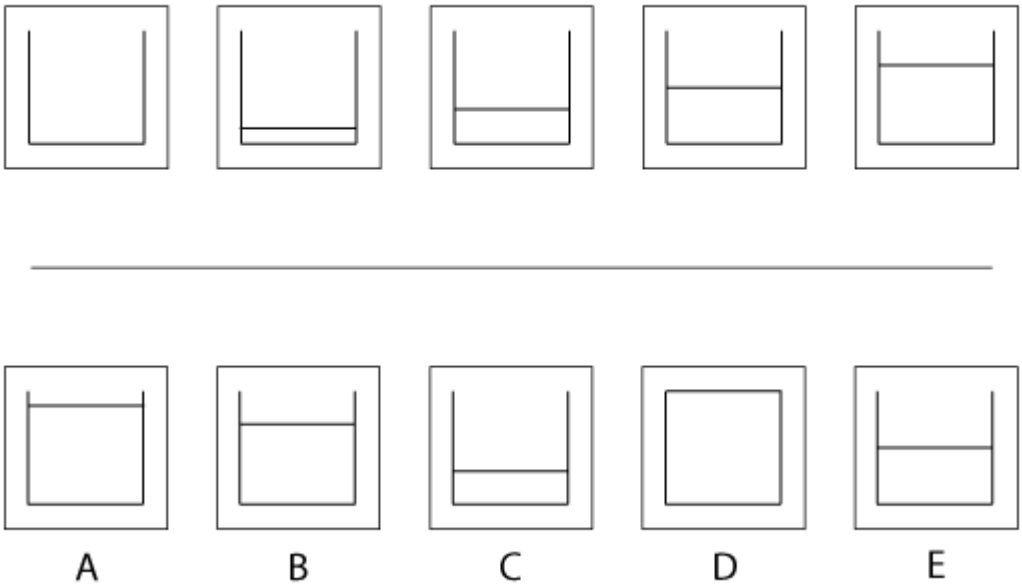
Q11 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is D.

Rule 1: The shapes grow small, medium, then large, then start again.

Rule 2: The shapes alternate between circle and square

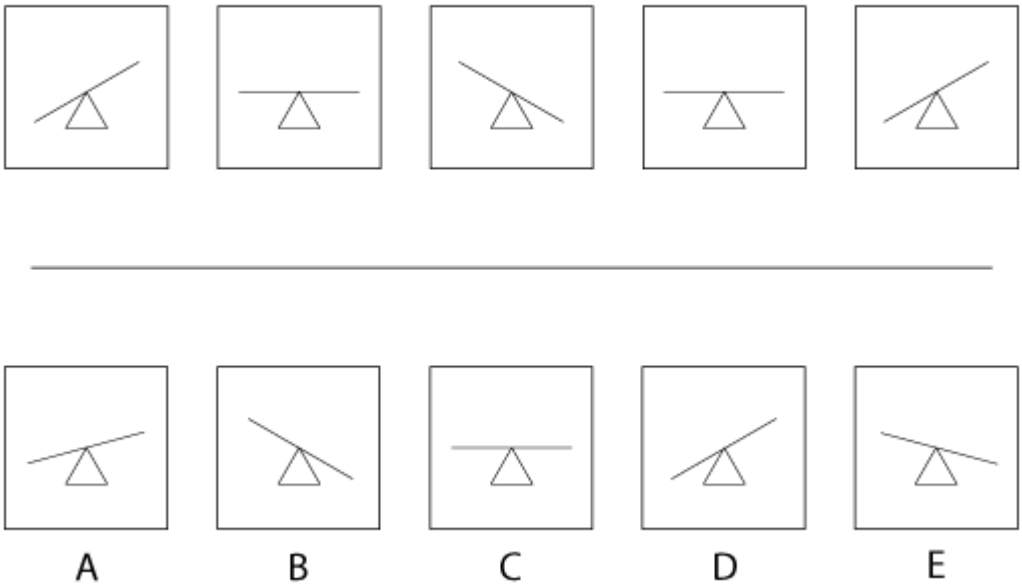


Q12 What comes next in the sequence

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is A

One Rule: The level of the liquid in the container rises by a consistent amount every time.

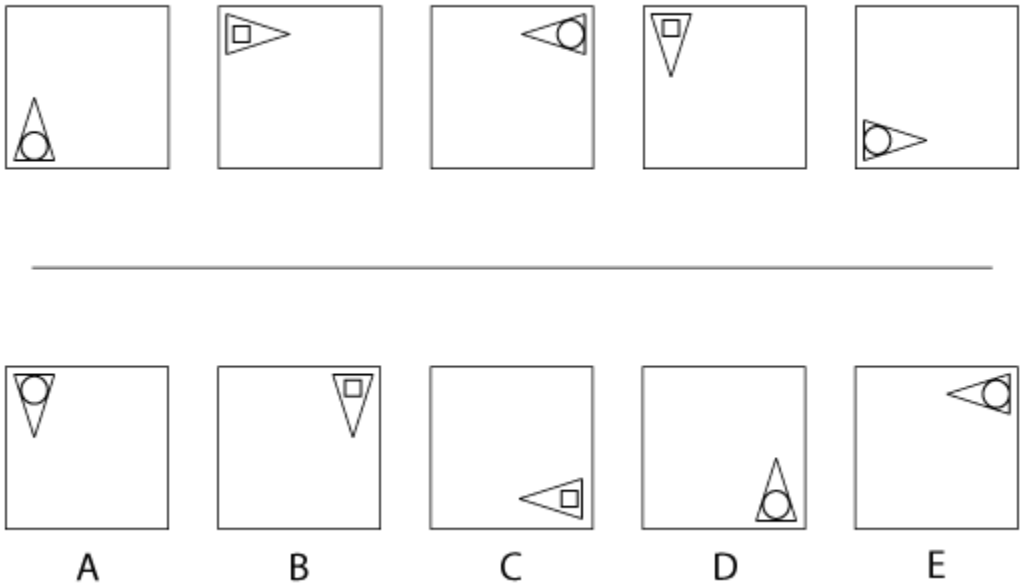


Q13 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is C

One Rule: The scales are tipped fully to the left, then straight, then tipped fully to the right, then straight. This sequence then repeats.



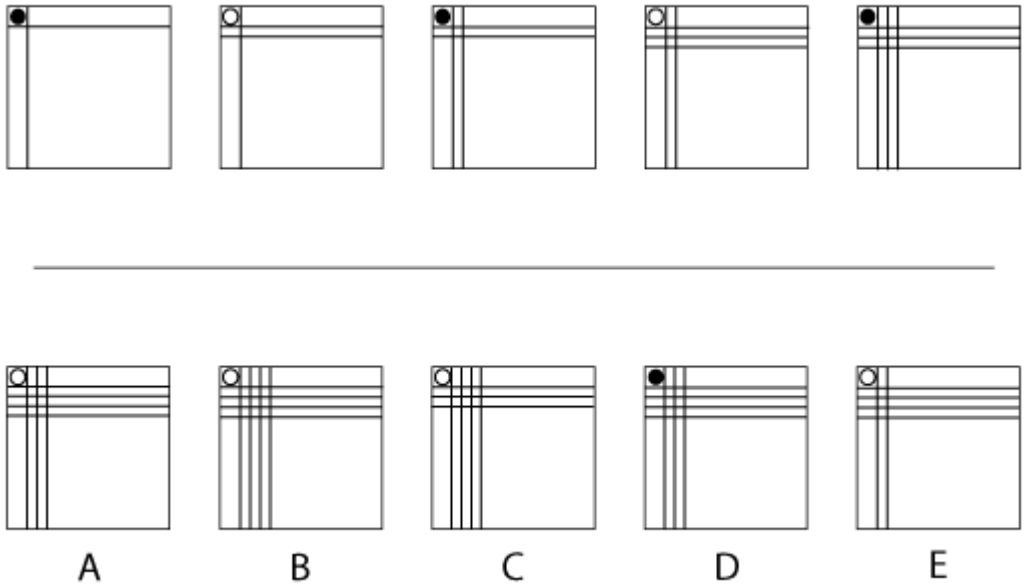
Q14 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is C.

Rule 1: The position of the shapes in the current item is determined by the direction the triangle is pointing in the previous item. There is no rule to determine the direction of the arrow in the current item, only its position.

Rule 2: The shape inside the triangle alternates between a circle and a square.



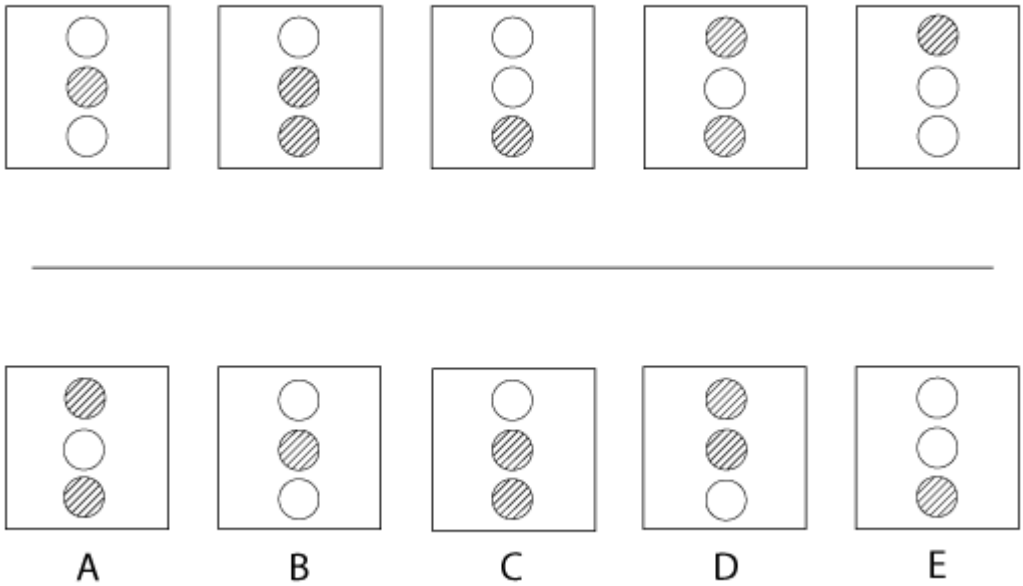
Q15 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is A.

Rule 1: The number of lines increases by one each time, alternating between adding a horizontal line, then a vertical.

Rule 2: The circle in the top left corner alternates between shaded and clear.

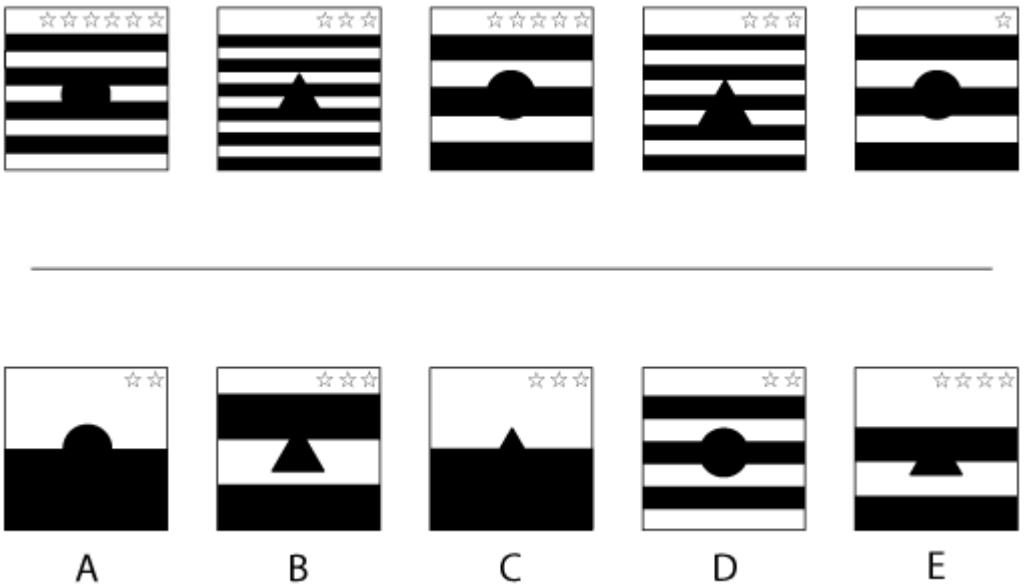


Q16 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is D

One Rule: The cross-hatching alternates between being applied to the circle below the shaded one (wrapping round to the top when no circle is available below) and removed from the circle that has had the cross-hatching for two consecutive figures.



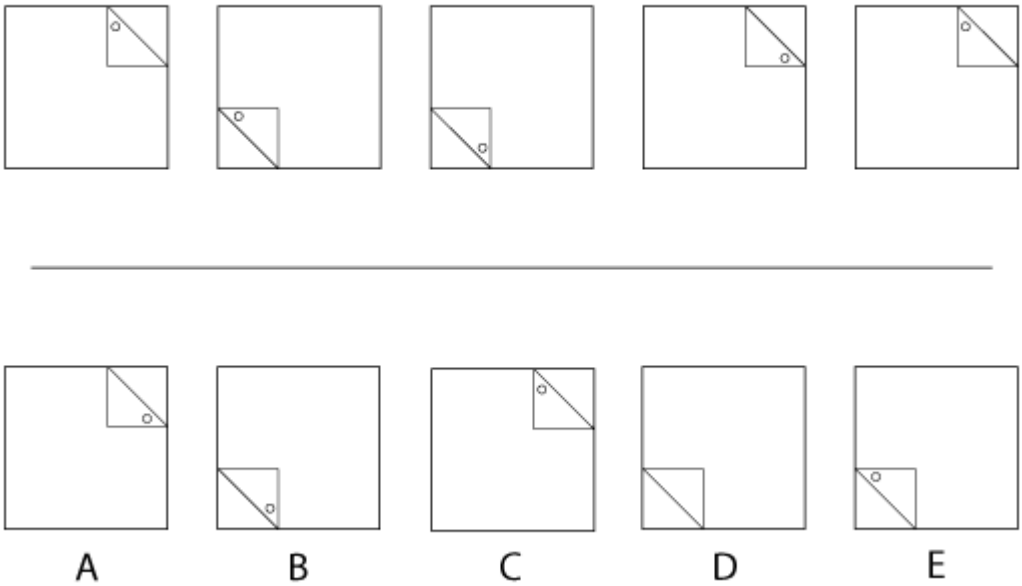
Q17 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is C.

Rule 1: The number of stars in the top right predicts how many horizontal lines will be in the next box.

Rule 2: The circle alternates with a triangle.

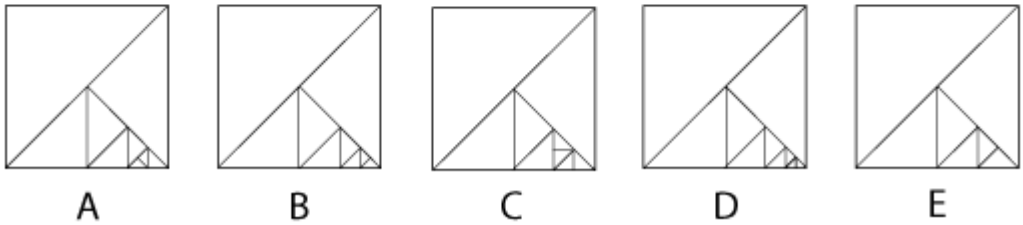


Q18 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is E

One Rule: The triangle with a dot in one corner alternates between mirrored in a diagonal from the top left of the figure to the bottom right and mirrored in a diagonal from the top right of the figure to the bottom left.



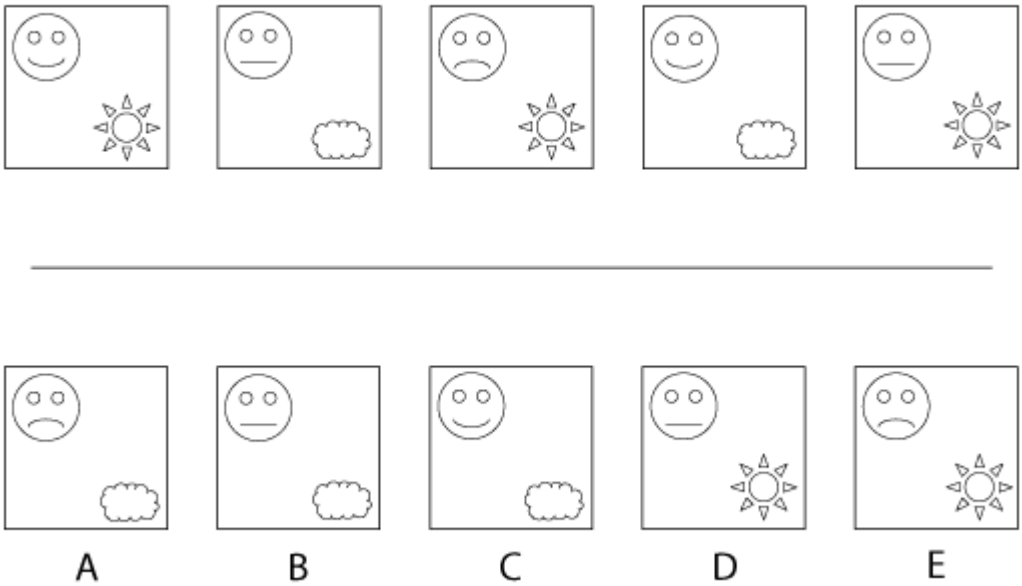
Q19 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is B

One Rule:

Every time, the small triangle nearest the bottom right corner is split into two equal triangles of the same proportions.



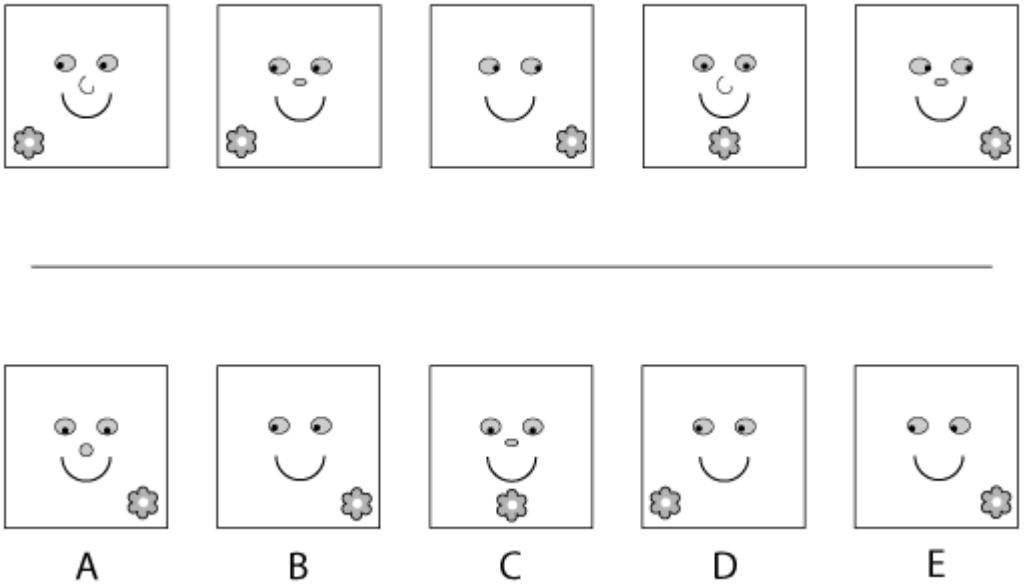
Q20 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is A.

Rule 1: The face changes in sequence from smiley to ambivalent to frowning.

Rule 2: The weather symbol alternates between sun and cloud.



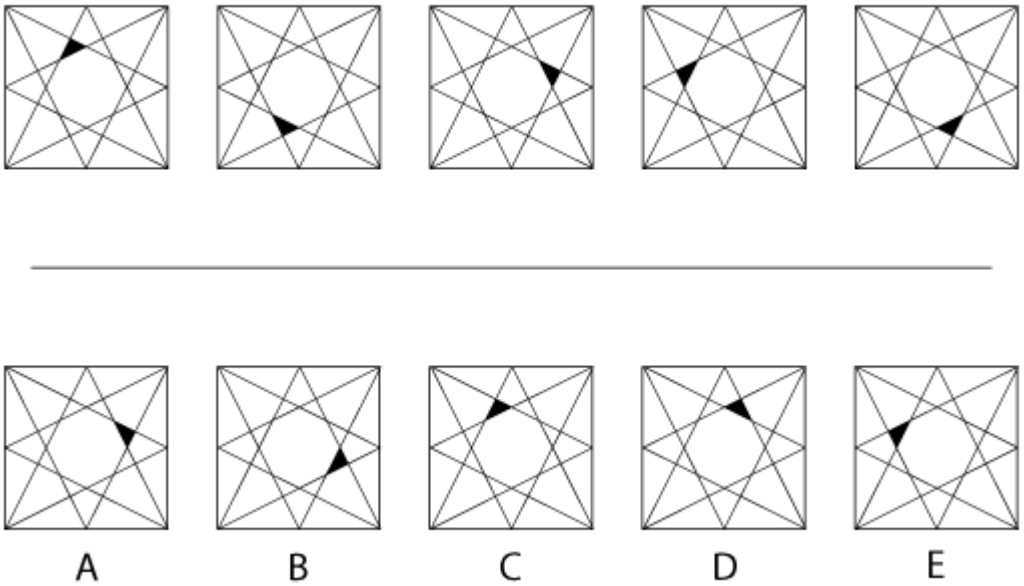
Q21 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is D.

Rule 1: The nose changes in sequence from hook to oval to none.

Rule 2: The eyes look towards the flower.



Q22 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is D

One Rule:

The shading of the small triangles moves 3 triangles anti-clockwise each time.

-- End of Test --

ABSTRACT REASONING TEST 11

Instructions

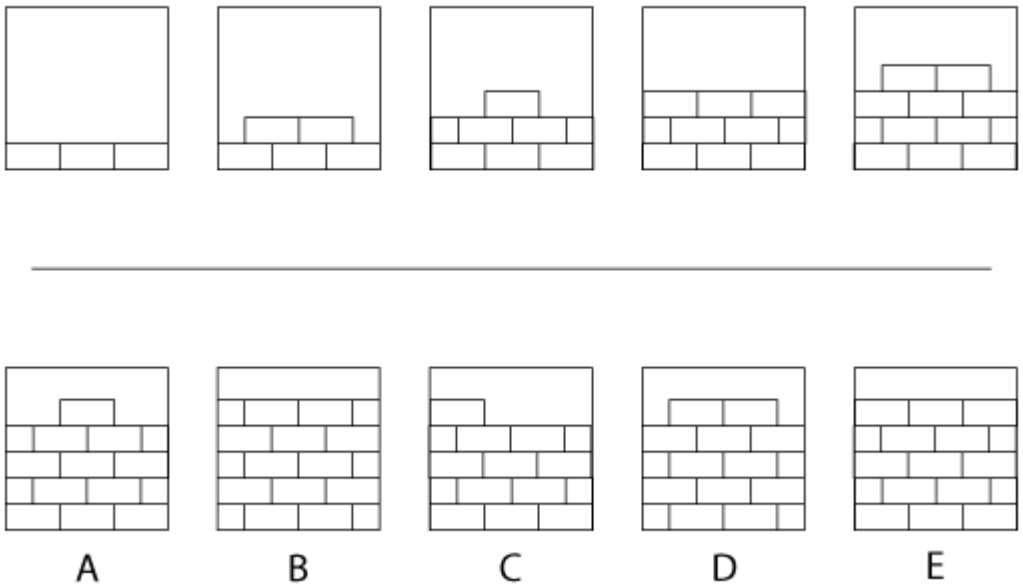
This inductive reasoning test comprises **30 questions** and you will have **25 minutes** in which to correctly answer as many as you can.

In each question you will be presented with a logical sequence of five figures. You will need to determine which of the possible answers best matches the next figure in the sequence, or which replaces the question mark.

You will have to work quickly and accurately to perform well in this test. If you don't know the answer to a question, leave it and come back to it if you have time.

You can submit your test at any time. If the time limit is up before you click submit the test will automatically be submitted with the answers you have selected. It is recommended to keep working until the time limit is up.

Try to find a time and place where you will not be interrupted during the test. **The test will start on the next page.**

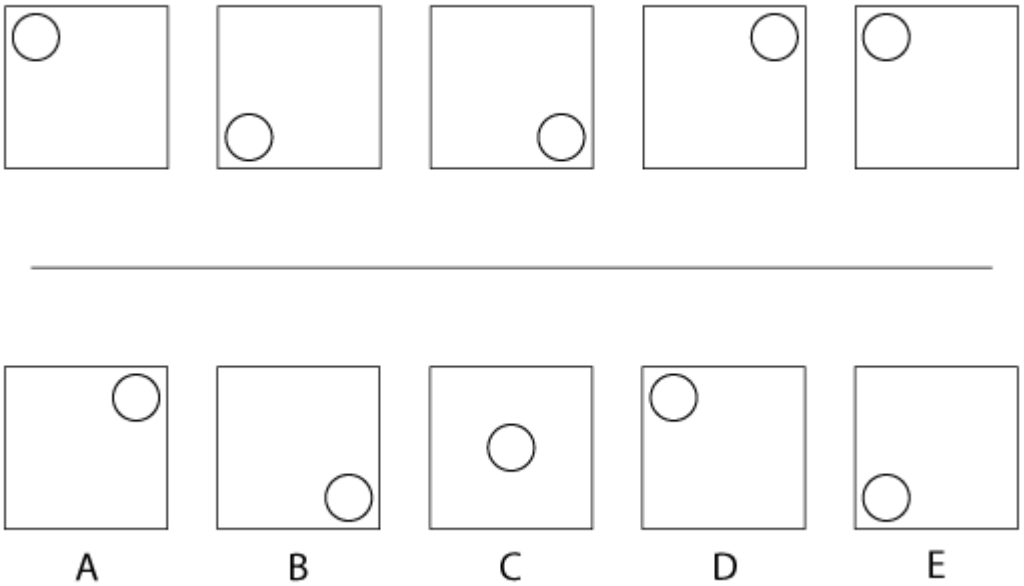


Q1 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is A

One Rule: Two bricks are added each time, starting from the centre and working outwards. Each row is completed before the next is started, and addition of two half bricks counts as adding one whole brick.

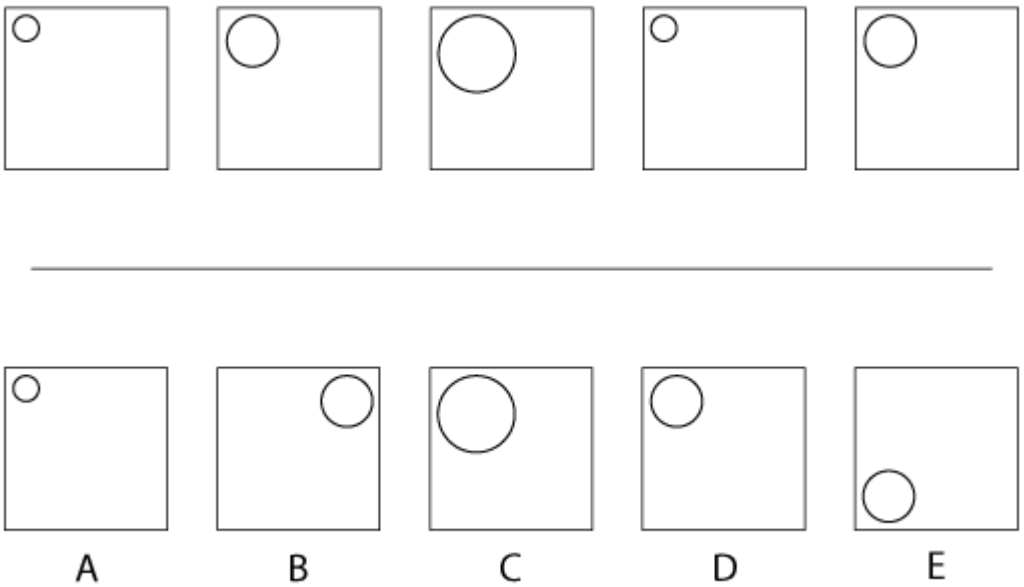


Q2 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is E

One Rule: The shapes move one corner anticlockwise each time.

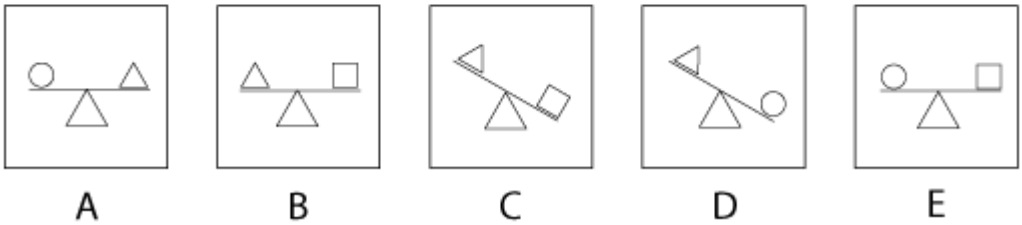


Q3 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is C

One Rule: The shapes grow small, medium, then large, then start again



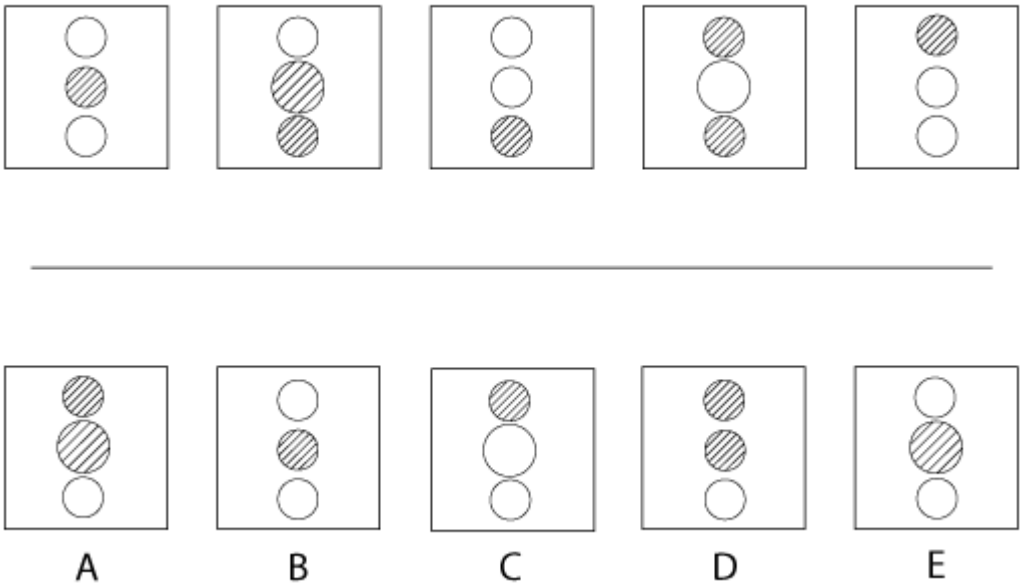
Q4 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is A

First Rule: The scales are tipped fully to the left, then straight, then tipped fully to the right, then straight. This sequence then repeats.

Second Rule: Squares weigh more than triangles and circles, which weigh the same as each other.



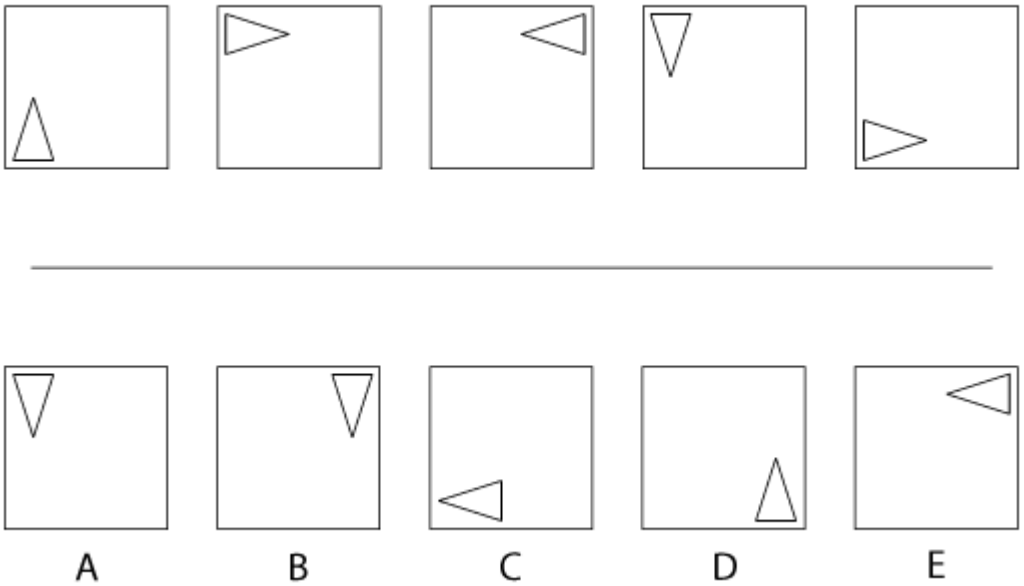
Q5 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is A

First Rule: The cross-hatching alternates between being applied to the circle below the shaded one (wrapping round to the top when no circle is available below) and removed from the circle that has had the cross-hatching for two consecutive figures.

Second Rule: The middle circle alternates between being the same size as the other two and being bigger than both of them.

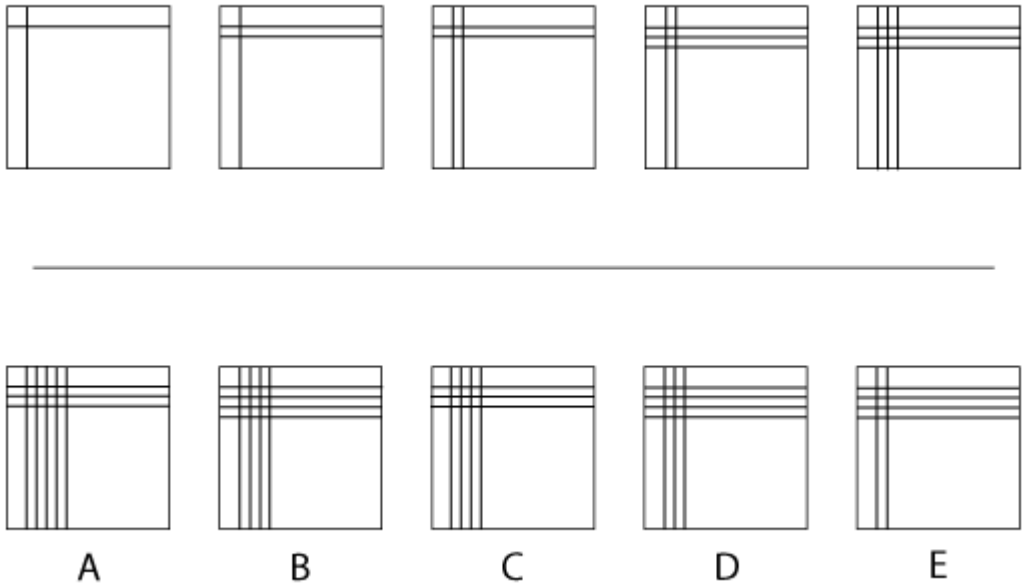


Q6 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is D

One Rule: The position of the shapes in the current item is determined by the direction the triangle is pointing in the previous item. There is no rule to determine the direction of the arrow in the current item, only its position.

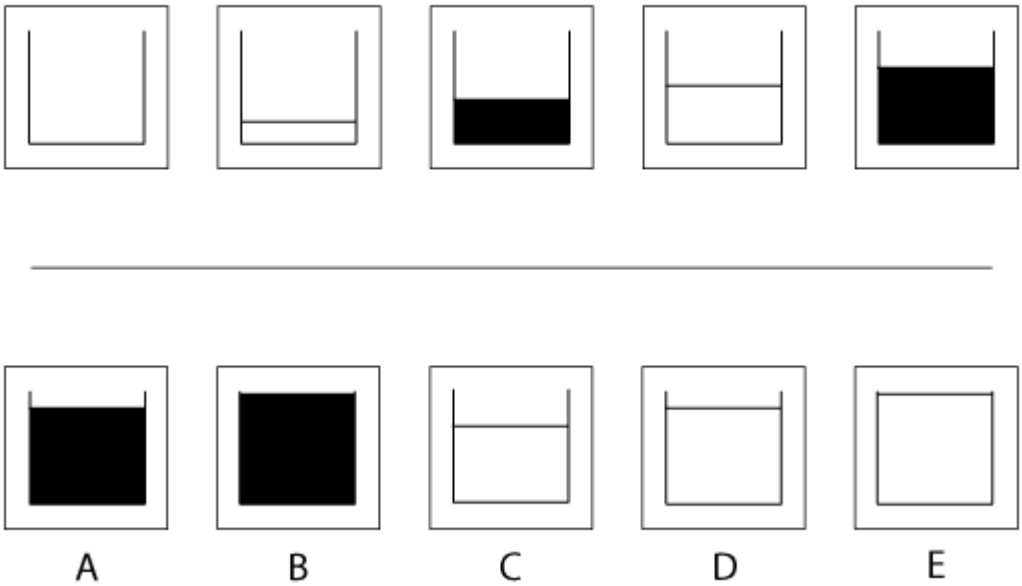


Q7 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is D.

One Rule: The number of lines increases by one each time, alternating between adding a horizontal line, then a vertical.



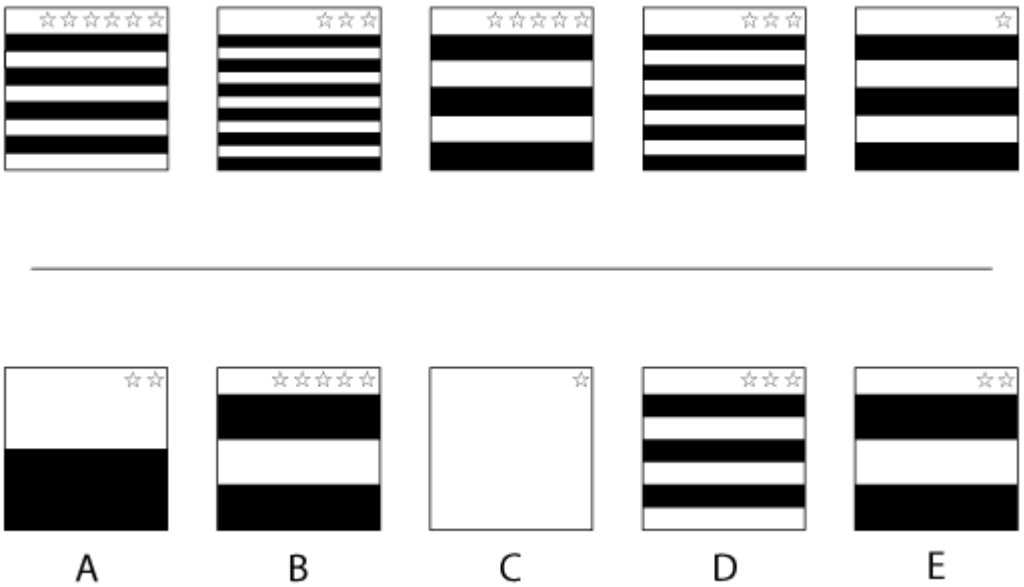
Q8 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is D

First Rule: The level of the liquid in the container rises by a consistent amount every time.

Second Rule: The liquid alternates between being light and dark (with the liquid in the first image being dark but non-visible).

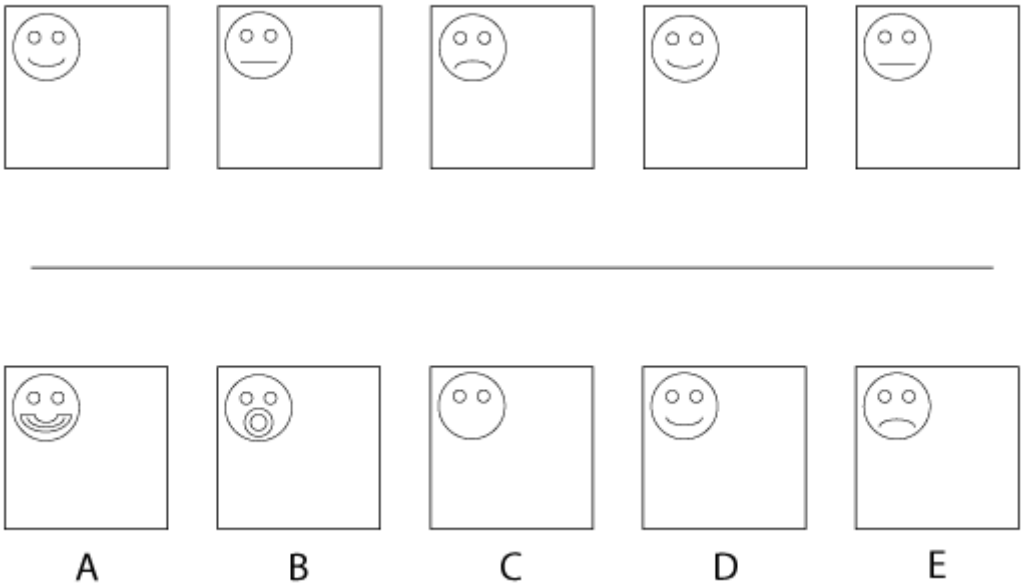


Q9 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is A.

One Rule: The number of stars in the top right determines how many horizontal lines will be in the next box.

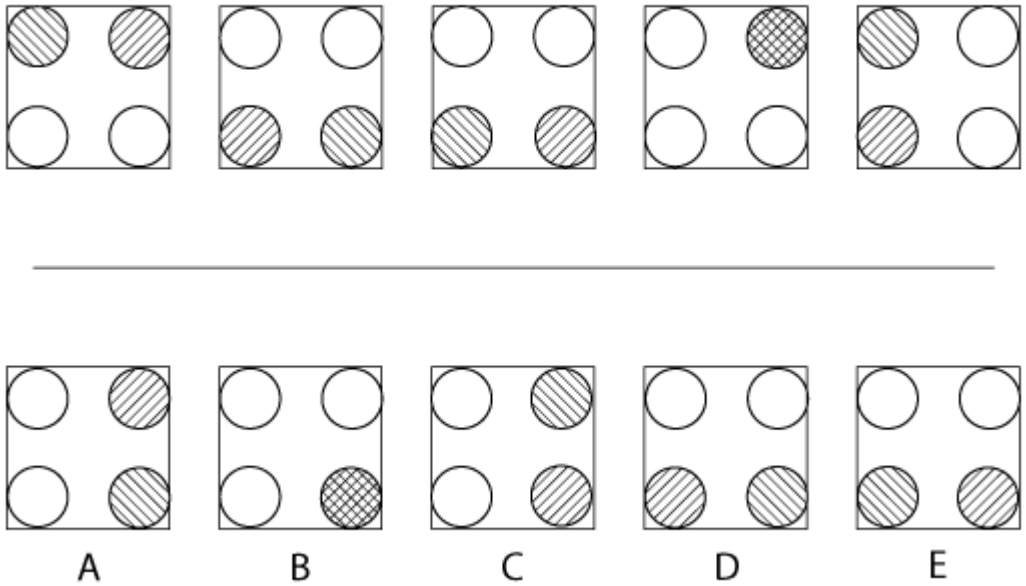


Q10 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is E

One Rule: The face changes in sequence from smiley to ambivalent to frowning.



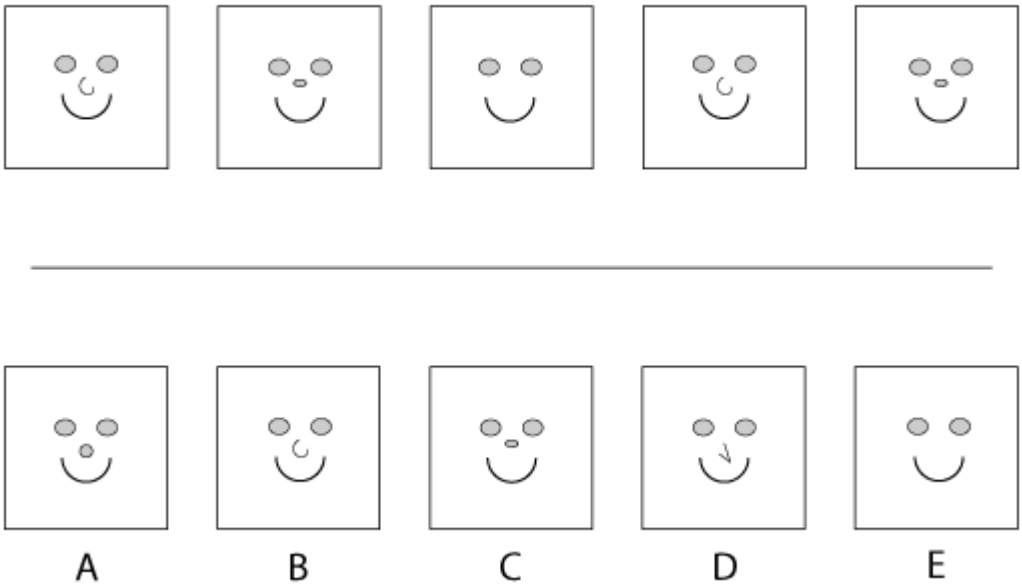
Q11 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is B

First Rule: The downward sloping cross-hatching follows the sequence top left circle, bottom right circle, bottom left circle, top right circle. This sequence then repeats.

Second Rule: The upward sloping cross-hatching follows the sequence top right circle, bottom left circle, bottom right circle. This sequence then repeats.

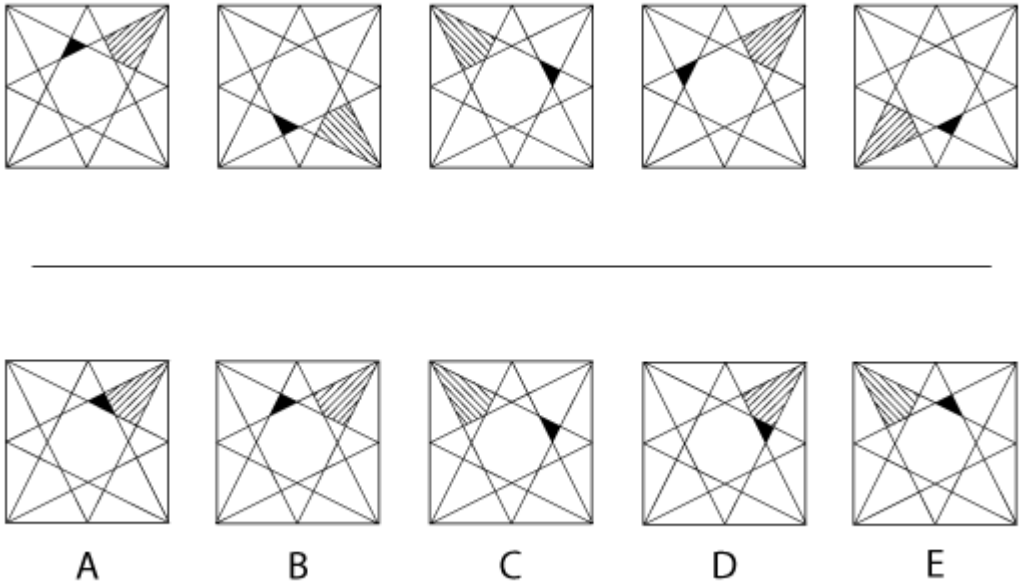


Q12 What comes next in the sequence

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is E

One Rule: The nose changes in sequence from hook to oval to none.



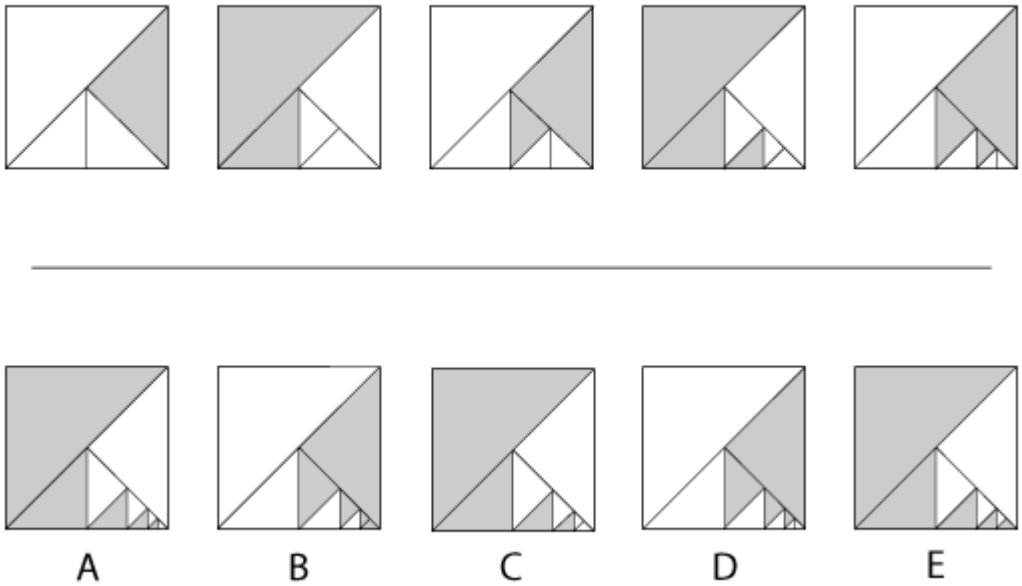
Q13 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is E

First Rule: The shading of the small triangles moves 3 triangles anti-clockwise each time.

Second Rule: The cross-hatching on the kite shapes near the corners of the figure, which is always in the direction of the nearest corner, moves clockwise, alternating between moving one shape and moving two.



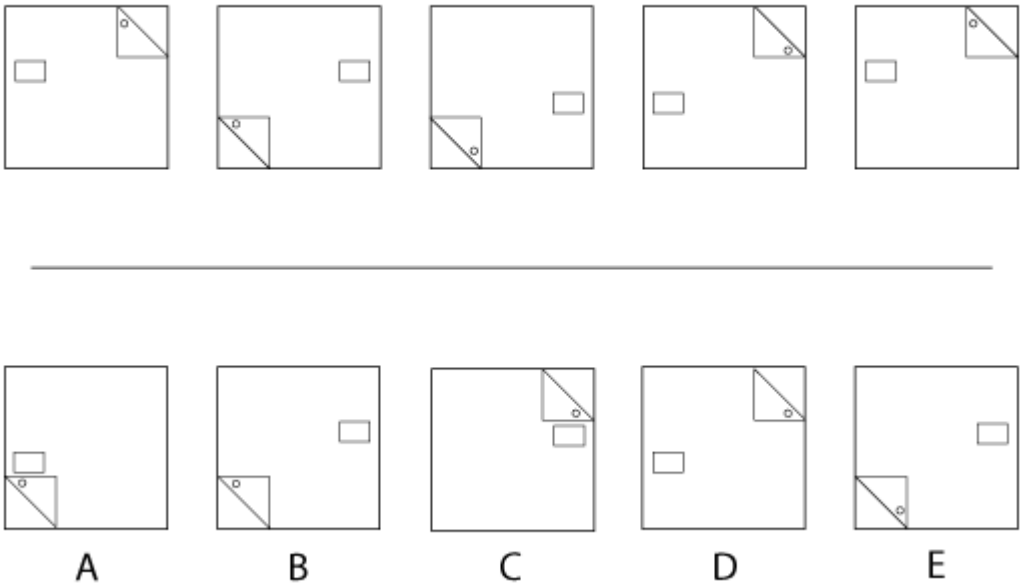
Q14 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is C

First Rule: Every time, the small triangle nearest the bottom right corner is split into two equal triangles of the same proportions.

Second Rule: The two, newly created, smallest triangles are always unshaded. The rest alternate between being shaded and unshaded in each image.



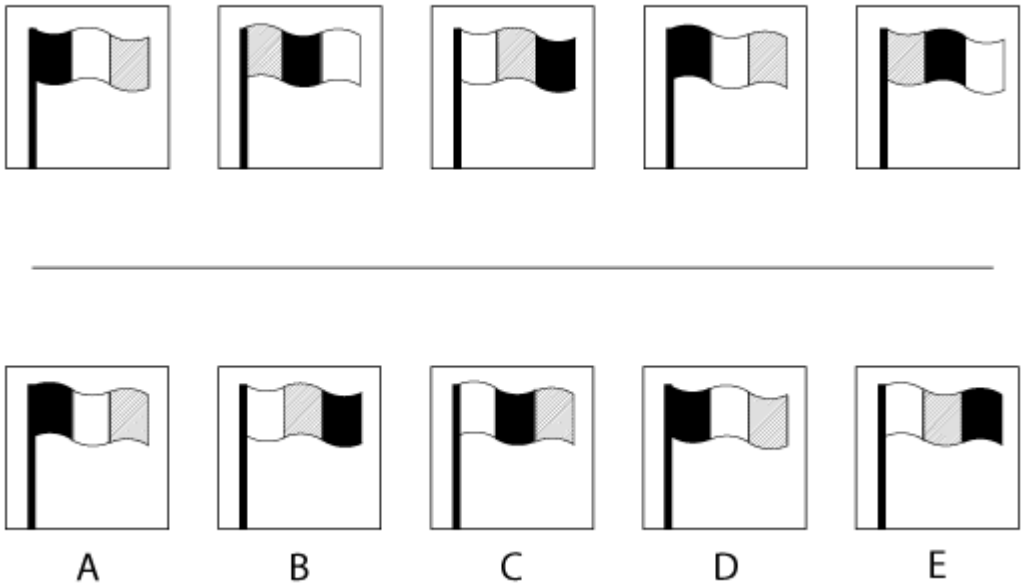
Q15 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is B

First Rule: The triangle with a dot in one corner alternates between mirrored in a diagonal from the top left of the figure to the bottom right and mirrored in a diagonal from the top right of the figure to the bottom left.

Second Rule: The rectangle alternates between being mirrored vertically and mirrored horizontally.



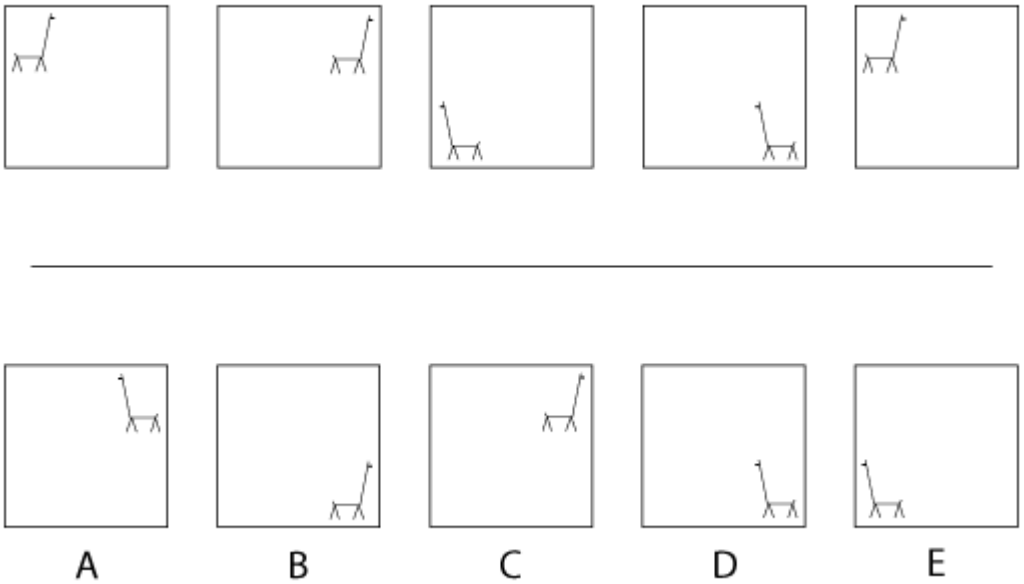
Q16 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is E

First Rule: The shading type furthest from the flagpole on one figure becomes the shading closest to the flagpole on the next figure, and every other form of shading moves one band to the right.

Second Rule: The flag alternates between the wave going down first and the wave going up first.



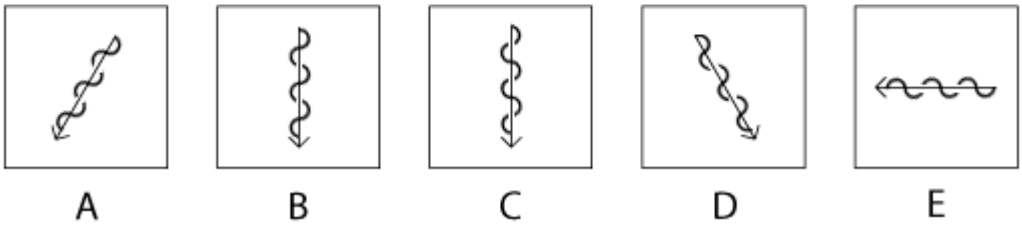
Q17 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is C

First Rule: The matchstick giraffe visits the corners in the order top left, top right, bottom left, bottom right. The sequence then repeats.

Second Rule: The matchstick giraffe faces right when it is at the top and left when it is at the bottom. Or Right, Right, Left, Left, Right....



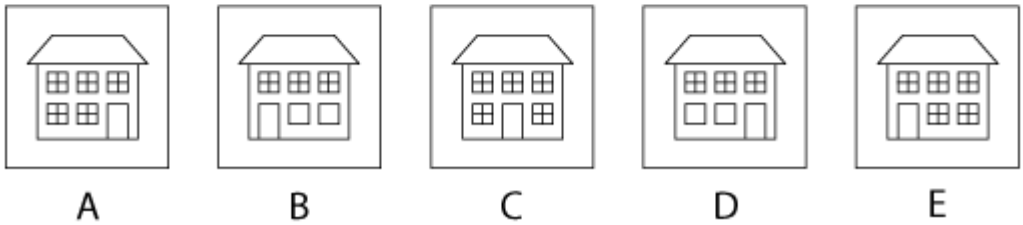
Q18 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is C

First Rule: The direction of the arrow rotates by 30º each time.

Second Rule: Following it in the direction of the arrow, the wavy line alternates between crossing in front of the straight line first and crossing behind it first.



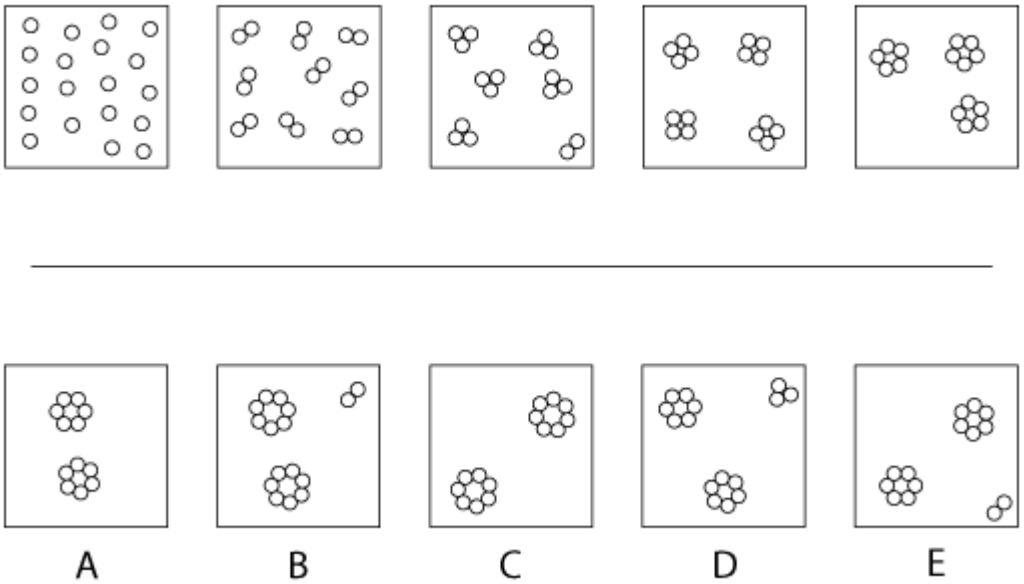
Q19 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is A

First Rule: The door moves to the right, centre, left then centre, always in line with the window immediately above it, and then the pattern repeats.

Second Rule: First only upper storey windows are leaded, then only the lower storey windows are leaded, then all windows are leaded. This pattern then repeats.



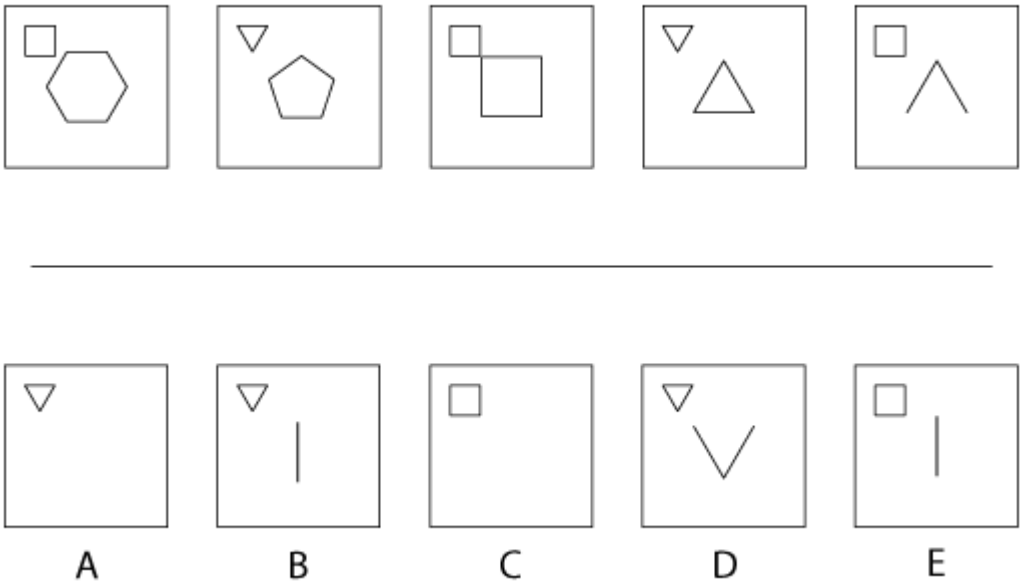
Q20 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is E

First Rule: The number of circles that are grouped together increases by one every time, with the final group containing all the circles that do not fit into a whole group.

Second Rule: One circle is removed every time.



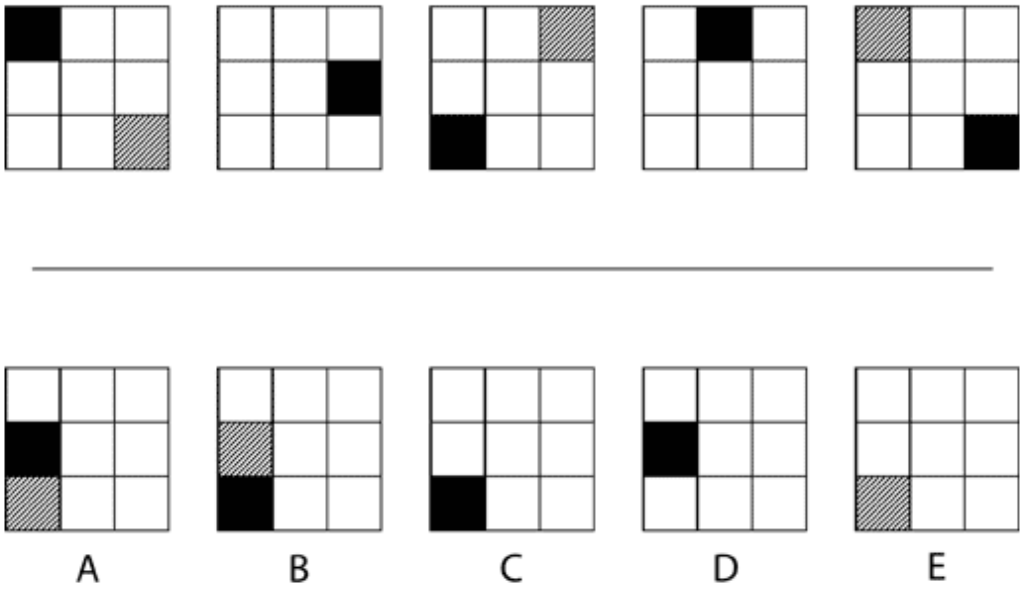
Q21 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is B

First Rule: The shape in the centre comprises 1 fewer straight line every time.

Second Rule: The shape in the top left alternates between being a triangle and being a square.



Q22 What comes next in the sequence?

(A) A
(B) B
(C) C
(D) D
(E) E

The correct answer is D

First Rule: Each step, the shaded square moves 3 squares clockwise round the edge of the figure.

Second Rule: Each step, the cross-hatching moves 1 square anticlockwise round the edge of the figure, disappearing behind the shading when the two coincide.

-- End of Test --