



## Presidential Schools Admissions Test - Sample items with explained answers

### Test A: Problem Solving

- 1 Anora was counting her money and found that she had 12000 som. She was able to put all of her banknotes into three piles of 100 som notes, 200 som notes and 500 som notes. She found that there were three times as many 100 som notes as 200 som notes, and twice as many 200 som notes as 500 som notes.

How many banknotes did Anora have?

- A 42
- B 48
- C 60
- D 72
- E 84

**Key: D**

**Justification**

For every one 500 som banknote, there will be two 200 som banknotes and six 100 som banknotes. So, for every one 500 som banknote there will be a total of 9 banknotes adding up to 1500 som (  $(1 \times 500) + (2 \times 200) + (6 \times 100)$ ).

$12000/1500 = 8$ , so there will 8 lots of 9 banknotes, and  $8 \times 9 = 72$ .

2 Mrs Pasha is buying sports shoes for her two sons, Kash and Mekah.

The following table shows the shoes that are available.

<i>type</i>	<i>sizes available</i>	<i>colours available</i>	<i>cost</i>
shoe A	1 – 10	white	\$60
shoe B	5 – 12	black, blue	\$50
shoe C	3 – 8	black	\$55
shoe D	2 – 6	red, black, white	\$70
shoe E	5 – 10	blue, black	\$40

Kash needs size 4, but he will not have black or blue shoes.

Mekah needs size 8, and will only have white or red shoes.

What is the least amount that Mrs Pasha will have to pay for the two pairs of shoes if her sons' wishes are met?

- A \$100
- B \$110
- C \$115
- D \$120
- E \$130

**Key: D**

**Justification**

Kash needs size 4, so shoe A, C or D. But shoe C is only available in black, so shoe A or D.

Mekah needs size 8, so shoe A, B, C, E. But it must be white or red, so only shoe A.

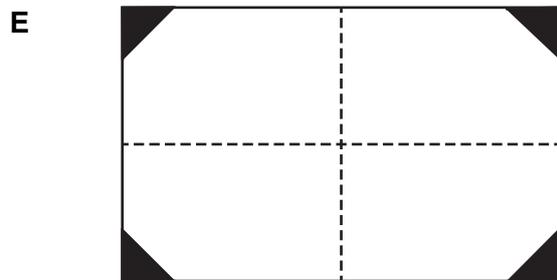
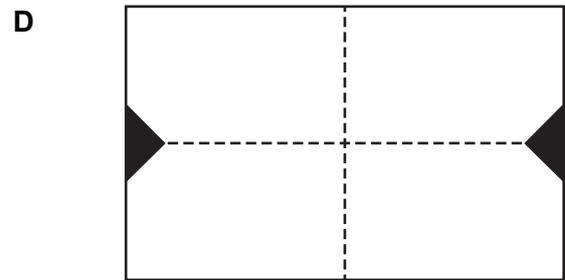
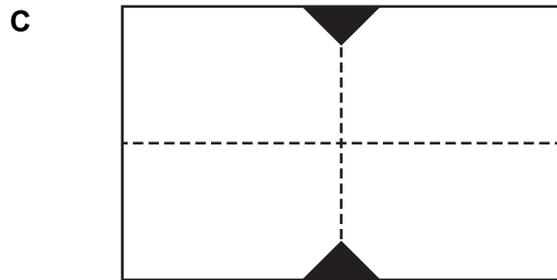
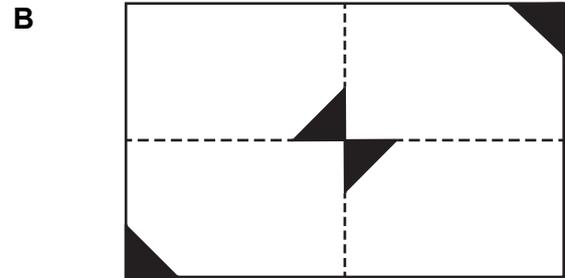
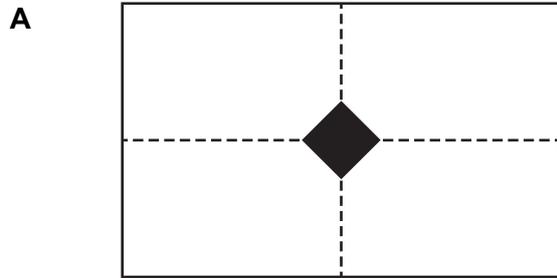
Mrs Pasha must buy shoe A + shoe A costing \$120, or shoe D + shoe A costing \$130. The least cost is therefore \$120.

- 3 A piece of rectangular paper is folded in half, and then in half again. The second fold is at right-angles to the first.

A corner is cut off the folded paper. The paper is then completely unfolded.

Which of the following is **not** a possible appearance of the unfolded paper?

(The dotted lines represent the folds).



**Key: B**

**Justification**

**B** is the only appearance which is not possible. Each of the others can be made by cutting one of the corners.

## Test A: Critical Thinking

- 4 Lots of people in the world do not have clean water to drink.  
+  
Drinking dirty water can easily make people ill.  
+  
Governments have a duty to help people stay healthy.  
=  
\_\_\_\_\_

Which one of these sentences should go in the space above?

- A People should not drink dirty water.
- B Everyone should try to stay healthy.
- C Lots of people have to travel a long way to find drinking water.
- D Governments never do their duty.
- E Governments should make sure people have clean drinking water.

**Key: E**

### **Justification**

From the first two sentences we can conclude that a lack of clean drinking water is likely to be affecting people's health. With the addition of the third sentence we can conclude that, since people's health is partly the responsibility of governments, they have a duty to try to remedy this.

### **Distractors**

**A** cannot be concluded, as we are told that some people in the world have no access to clean water.

**B** is not supported by any of the sentences, either independently or in combination.

**C** is not supported by any of the sentences, either independently or in combination.

**D** cannot be concluded, as whilst it is strongly implied that governments are failing in their duties in respect of drinking water, it does not follow that they do not ever do their duty in other respects.

- 5 When Kobe heard that Mansur had got full marks in a recent maths test, he said: “You see? I *knew* Mansur had cheated.”

Which one of these sentences has to be true for what Kobe says to be correct?

- A It was not possible for anyone to get full marks on the test because it was so difficult.
- B Mansur would not have been able to get full marks in the maths test without cheating.
- C The test was the hardest one that any of the class could remember taking.
- D Mansur is not clever enough to get full marks in any tests.
- E Mansur has cheated on other tests before this one.

**Key: B**

**Justification**

If Kobe is able to deduce only from the fact that Mansur got full marks that Mansur must have cheated, it must not have been possible for Mansur to score full marks without cheating. If this is not the case, what Kobe says is not justified.

**Distractors**

**A** would be sufficient grounds for Kobe’s claim, but goes beyond what has to be true, as we are only told Kobe’s result.

**C** does not have to be true – it may be that the test was quite easy for the other students.

**D** does not have to be true – it may be that Mansur excels in other subjects, or would score full marks on a much easier maths test.

**E** does not have to be true – it may be that this is the first time Mansur has cheated on a test.

- 6 In a talk to our school a famous explorer said: "For their own good, young people should be encouraged to be much more adventurous."

Which one of these facts would make you most likely to agree with the explorer?

- A Some young people are naturally more courageous than others.
- B People who never take risks do not learn how to deal with dangerous situations.
- C Accidents cannot be avoided, however careful people are.
- D People who take unnecessary risks can endanger others as well as themselves.
- E Being adventurous does not necessarily mean taking risks.

**Key: B**

**Justification**

The explorer claims that young people should be encouraged to be more adventurous because it benefits them, but does not actually state what the benefits are. **B** suggests that being adventurous (which probably involves taking some risks) would benefit young people by helping them learn to deal with dangerous situations, thereby strengthening the explorer's claim.

**Distractors**

**A** does not strengthen the claim – the fact that some youngsters are more courageous than others is not a reason for all young people to try to be more adventurous.

**C** does not strengthen the claim – the explorer has not said anything about accidents.

**D** does not strengthen the claim – if anything it may weaken it, although the explorer has not actually advocated taking unnecessary risks.

**E** pre-empts a possible objection to the claim (i.e. that young people should not be encouraged to engage in risky behaviour), but does not strengthen the claim independently of this.

- 7 Before setting out on a long climb, a group of climbers was told by the guide: “Anyone who has not started climbing by 4:00 am will not reach the summit.”

If the guide’s prediction was right, which one of these sentences must have been true?

- A All the climbers who started before 4:00 am reached the summit.
- B Some of climbers who started before 4:00 am reached the summit.
- C None of the climbers who started after 4:00 am reached the summit.
- D Only the climbers who reached the summit started before 4:00 am.
- E All the climbers who did not reach the summit started after 4:00 am.

**Key: C**

**Justification**

If a climber who left after 4:00 am reached the summit, the guide’s prediction would have been incorrect. If it was correct, therefore, no one who left after 4:00 am can have reached the summit.

**Distractors**

**A** is not necessarily true – the guide’s prediction does not rule out climbers starting before 4:00 am but nevertheless failing to reach the summit.

**B** is necessarily false – if this were true, the guide’s prediction would have been false.

**D** is not necessarily true – as in **A**, the guide’s prediction does not rule out climbers starting before 4:00 am but nevertheless failing to reach the summit.

**E** is equivalent to **A**.

## Test B: Problem Solving

- 1 A farmer has equal numbers of cows, sheep and chickens. He sells half of the sheep and one third of the chickens, he then buys 10 goats and 3 cows. The farmer now has a total of 39 animals.

How many cows does the farmer now have?

- A 12
- B 13
- C 14
- D 15
- E 16

**Key: D**

### **Justification**

Before buying the ten goats and 3 cows, the farmer had 26 animals. This is the remainder after half of the sheep and one third of the chickens have been sold. Since we know that originally the numbers of cows, sheep, and chickens were the same, this gives  $x + x/2 + 2x/3 = 26$ , where  $x$  equals the original number of cows. Solving for  $x$  gives 12 cows originally, and adding the extra 3 cows gives a final answer of 15.

2 Below is a summary of all the second-hand cars sold by Bargain Cars during 2012 and 2013:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	85	83	98	102	118	135	88	97	116	83	125	128
2013	123	106	87	114	90	106	124	113	131	77	92	75

Which month of 2013 saw the biggest increase in sales compared with the previous month?

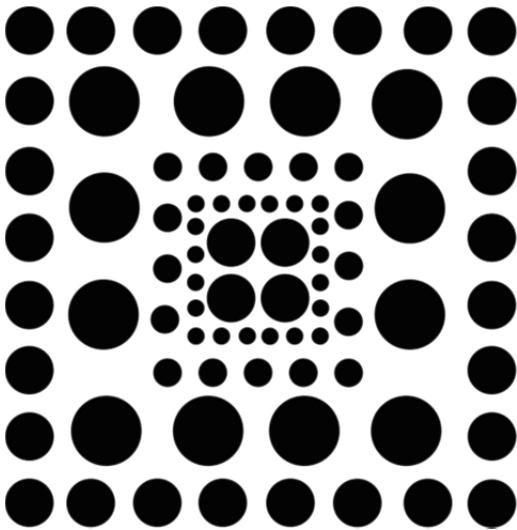
- A April
- B June
- C July
- D September
- E November

**Key: A**

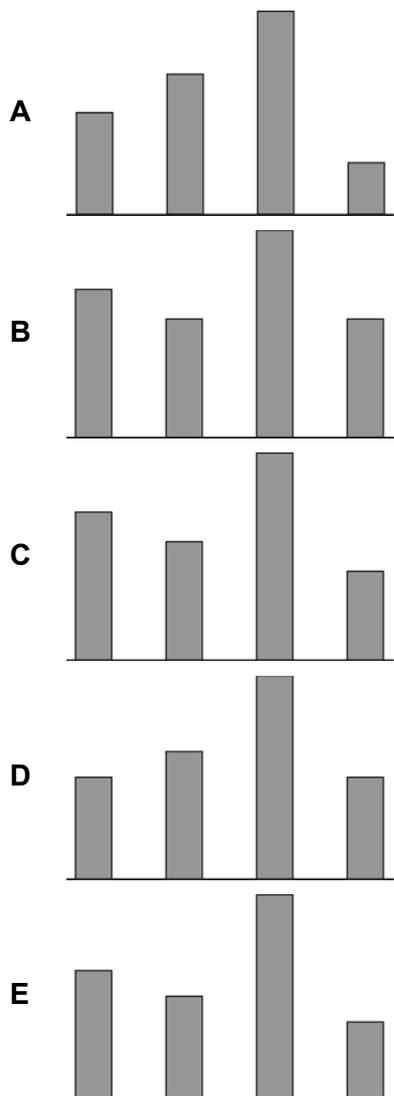
**Justification**

There was an increase of 27 from March to April 2013; this was the only increase of 20 or more during 2013.

3 The pattern below has a number of same size circles arranged in a reducing square.



Which graph represents the number of each sized circle?



**Key: E**

**Justification**

There are four sizes of circle. The numbers of each, in ascending order of size, are 20, 16, 32, and 12. The heights of the bars in **E** correspond to these values, from left to right.

## Test B: Critical Thinking

- 4 In general, having a larger brain is a sign of greater intelligence. Humans are more intelligent than other primates and their brains are also significantly bigger. Birds, however, have tiny brains, but they are also very smart. Crows can use tools, songbirds seem to have a primitive language, and parrots can learn human speech. Birds typically have much smaller brains than mammals, and yet are often a lot smarter – especially when it comes to smaller mammals.

Which one of these sentences can be concluded from the above information?

- A Birds are not as intelligent as they appear to be.
- B The only way to measure a creature's intelligence is to observe its behaviour.
- C Brain size is not the only factor that determines how intelligent a creature is.
- D Birds are able to do things that mammals are not able to do.
- E The most intelligent birds will be the ones with the biggest brains.

**Key: C**

### Justification

Given that birds have smaller brains than many mammals but are often a lot smarter, brain size cannot be the only factor that determines how intelligent a creature is.

### Distractors

**A** cannot be concluded – nothing in the passage would support this.

**B** cannot be concluded – whilst some support is offered for a claim that observing behaviour is a better method of measuring intelligence than observing brain size, it does not follow that it is the *only* method that could yield accurate results.

**D** cannot be concluded – whilst it is certainly true, it does not follow from anything in the passage.

**E** cannot be concluded – nothing in the passage would support this.

- 5 Afifa and Zara are looking at an exhibit in a modern art gallery. The exhibit is a brick hanging on a thin piece of string above a bird's egg. Afifa likes it, but Zara says: "You can't call that 'art', whether it is in an art gallery or not. Anyone can tie string round a brick. There's no skill required."

Which one of these sentences has to be true for Zara's argument to be correct?

- A Not everyone likes the same kind of art.
- B Anything that takes skill is a work of art.
- C Anyone can produce a work of art.
- D A work of art must involve some skill.
- E Anything found in an art gallery is art.

**Key: D**

**Justification**

Zara asserts that the exhibit is not art solely on the basis that it did not require skill to produce. For this to be justified, it must be the case that a true work of art must require some skill.

**Distractors**

**A** does not have to be true – the question of who likes what kind of art is not relevant to Zara's argument.

**B** does not have to be true – Zara says skill is necessary to produce art, but it does not follow that taking skill is enough to make something art.

**C** does not have to be true – in fact it is contradicted by what Zara says.

**E** does not have to be true – in fact it is contradicted by what Zara says.

- 6 Sarvar and Ona are talking about their parents. Sarvar says: “My parents are too strict. I am not allowed time on my computer or to play outside until I have done my homework. I think they should let me decide what the best time to do my homework is. I know best.”

Which one of these facts would make Sarvar’s argument stronger?

- A Sarvar’s parents know that he can be lazy and prefers playing to homework.
- B Most other children at Sarvar’s school have to do their homework as soon as they get home.
- C Ona is allowed to do her homework in the evening after a meal.
- D Sarvar is very tired after school and can work better after a break.
- E Doing homework is very important to help children do well at school.

**Key: D**

**Justification**

Sarvar claims that his parents should let him decide when to do his homework, but does not offer any reason for this other than “I know best”. **D** provides a more substantial reason why allowing him to do so would be a good idea – it might actually improve the quality of his work.

**Distractors**

**A** may weaken Sarvar’s argument, as it suggests he might not actually do his homework if left to decide for himself.

**B** may weaken Sarvar’s argument, as it suggests that his parents may not actually be unusually strict.

**C** does not strengthen Sarvar’s argument – we do not know anything about Sarvar and Ona’s situation which would suggest they ought to follow the same rules.

**E** does not strengthen Sarvar’s argument – the question is when, not whether, the homework should be done.

- 7 My dentist put a sign in her clinic saying: "If you are aged under 18 and attend my clinic at least once a year, you will need fewer extractions than if you don't." I don't attend as often as every year, but my brother does. My sister attends every 6 months. We are all aged under 18.

What can we expect if the dentist is right?

- A My brother and sister will both need more extractions than me.
- B My sister will need fewer extractions than my brother.
- C My brother and sister will both need fewer extractions than me.
- D My brother will need more extractions than my sister but fewer than me.
- E My sister will need fewer extractions than me but more than my brother.

**Key: C**

**Justification**

I do not attend the dentist every year, but both my brother and sister do. If what the dentist says is true, they will both need fewer extractions than me.

**Distractors**

**A** is the opposite of what the dentist predicts.

**B** would be true if going to the dentist every six months was better than going every year, but the dentist does not make this claim.

**D** assumes a straightforward correlation between frequency of visits and number of extractions for the three siblings.

**E** does not follow from what the dentist says – there is no reason my sister would need fewer extractions than my brother.

## Test C: Problem Solving

- 1 A picture 40 cm high by 30 cm wide is to be framed. There will be a border between the edge of the picture and the frame. This border will be 6 cm wide at the top and sides, and 9 cm wide at the bottom. The width of the wood used for the frame is 2 cm.

What is the overall height of the framed picture?

- A 46 cm
- B 49 cm
- C 56 cm
- D 59 cm
- E 62 cm

**Key: D**

**Justification:**

Height of picture 40 cm; top border 6 cm; bottom border 9 cm; frame 2 x 2 cm.

Total height 59 cm.

- 2 A computer game involves the capturing of three types of mythical creatures: Arps, Orps and Urps.

Arps have 6 legs, 3 horns and a tail.

Orps have 4 legs and 2 horns, but no tail.

Urps have 3 legs and a tail, but no horns.

The last time Billy played this game he captured 45 creatures with a total of 222 legs, 99 horns and 33 tails.

How many of the 45 creatures that Billy captured were Urps?

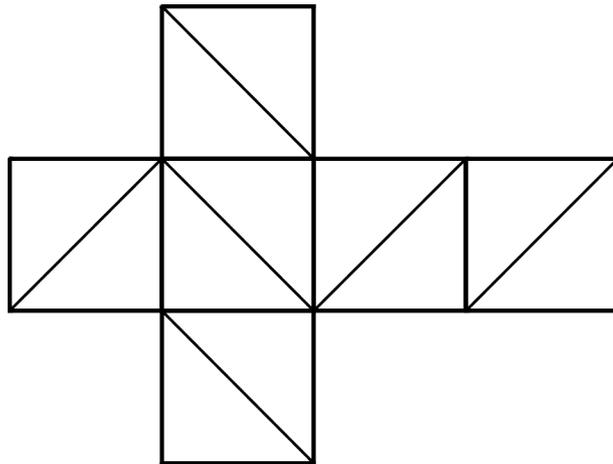
- A 8
- B 12
- C 15
- D 20
- E 25

**Key: A**

**Justification:**

33 of the creatures had a tail, so there were 12 Orps, which account for 24 of the horns. The other 75 horns must belong to the Arps, so there were 25 Arps, and therefore 8 Urps.

3 The following net is folded up to make a cube.



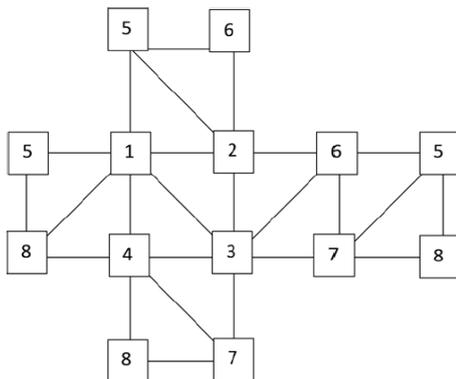
At how many corners of the cube do exactly two of the diagonal lines on the faces meet?

- A 2
- B 3
- C 4
- D 5
- E 6

**Key: C**

**Justification:**

Numbering the vertices of the cube gives the following:



Exactly two diagonal lines meet at corners 1, 3, 5 and 7.

## Test C: Critical Thinking

- 4 When drugs known as antibiotics are used to treat a particular disease they kill off most of the bacteria that cause the disease, and the patient recovers. But any bacteria that survive the treatment are, obviously, the ones that were able to resist the power of the drug. Every time the drug is used, more and more of the resistant bacteria are left alive to reproduce and pass on their genes. Because bacteria evolve much more quickly than humans, it takes only a few decades before all or most of the bacteria which cause that particular disease have become resistant to the drug.

Which one of the following is a conclusion which can be drawn from the above passage?

- A If antibiotics are used too freely, they eventually stop being effective treatments.
- B In several decades there will be no way to fight diseases caused by bacteria.
- C Antibiotics are the most effective way of treating infectious diseases.
- D Doctors who regularly prescribe antibiotics are irresponsible.
- E There is no long-term medical solution to the problem of drug-resistant bacteria.

**Key: A**

**Justification:**

The passage explains how bacteria start to become drug-resistant, and how resistance increases with repeated treatments. It follows from this that if antibiotics are used too often, they will cease to be effective treatments.

**Distractors**

**B** is too general, and too extreme. It goes beyond the specific case of antibiotics.

**C** might be thought to follow from the first sentence of the passage, but the author neither says nor implies anything about the comparative effectiveness of treatments.

**D** is sometimes claimed in connection with this topic, but it is not supported by this particular passage.

**E** (like **B**) is too extreme. It ignores alternative treatments.

- 5 Lamarck was a 19th century scientist who believed that modifications in an animal's body during its lifetime could be passed on to its offspring: for example, he thought that a giraffe which lengthened its neck by stretching could pass on the characteristic of a longer neck. But, in common with other 19th century scientists, Lamarck did not know about genes. When a giraffe stretches, it may alter its own body, but it does not alter its genes. So the fact that it stretches cannot affect the length of its offspring's neck.

Which one of the following is an assumption underlying the above argument?

- A Giraffes with longer necks are better adapted to their environment.
- B The genes of a species can change only over a long period of time.
- C Offspring can inherit characteristics from their parents only through genes.
- D Giraffes cannot alter the length of their necks by stretching.
- E Nineteenth century scientists thought that animals could deliberately change their characteristics.

**Key: C**

**Justification:**

The passage concludes, based solely on the fact that stretching does not alter genes, that the effects of stretching cannot be passed on to offspring. This is justified only if it is assumed that genes are the only means by which characteristics can be inherited.

**Distractors**

**A** does not need to be assumed – the actual reasons for, or benefits of, modifications are not discussed.

**B** does not need to be assumed – the fact that stretching does not alter a giraffe's genes is stated.

**D** does not need to be assumed – it is the mechanism by which longer necks are passed on, rather than how they originate, that is the subject of the argument.

**E** does not need to be assumed – it is not stated whether the animals are changing their characteristics deliberately, and in any case the views of other scientists on this matter would not be relevant.

- 6 Young people are involved in the proposals for a dedicated children's facility at a major hospital. This facility should be built as a matter of urgency. Project leaders say, "it is imperative that we have a facility that focuses on the needs of teenagers and young adults. Although the clinical facilities and staff here are excellent, we currently have to treat children alongside adults: two thirds of young outpatients are seen in adult clinics. A dedicated facility would mean that we could see all our patients in the right environment."

Which one of the following, if true, most weakens the above argument?

- A A shortage of available land may make it difficult to build the proposed facility close to the existing buildings.
- B Young people are less likely than adults to understand the issues involved in a project of this sort.
- C Young people are not disadvantaged by being treated in the same facility as adults.
- D An adult facility is unlikely to have medical staff specially trained to work with children.
- E A separate facility would necessitate an increase in staff, which would be more expensive even if they were available.

**Key: C**

**Justification:**

The passage argues that the children's facility should be built as a matter of urgency, on the basis that at present many young people are being seen in adult clinics. This is only justified if we assume that the current state of affairs is having some negative effect. C, if true, undermines this assumption, seriously weakening the argument.

**Distractors**

**A** does not weaken the argument unless we also assume that the distance between the two facilities will have significant negative effects.

**B** does not weaken the argument, as the fact that young people are involved in the project is not an element of the reasoning in the passage.

**D** does not weaken the argument, and in fact may strengthen it, as it provides grounds to believe that the current state of affairs is having some negative effect.

**E** does not independently weaken the argument, as there is no reason given to think that the benefits of the new facility would not justify any increased cost.

- 7 Three balls – each of which is either red or yellow – lie in a straight line on a pool table. Aziz strikes the first ball, which is red. That ball strikes the middle ball. The middle ball then strikes the last ball, which is yellow.

On the basis of this information, which one of the following statements must be true?

- A Only one of the balls was red.
- B A red ball struck a yellow ball.
- C A yellow ball struck a red ball.
- D Only one of the balls was yellow.
- E We do not have enough information to know any of the above.

**Key: B**

**Justification:**

We do not know the colour of the middle ball. The solution can be seen by considering the two possibilities in turn: (1) that the middle ball is yellow, in which case the first ball (red) strikes the second ball (yellow), making **B** true; or (2) that the middle ball is red, in which case the middle ball (red) strikes the last ball (yellow), also making **B** true.

**Distractors**

**A** may not be true – if the middle ball were red, two of the balls would be red in total.

**C** is actually impossible.

**D** may not be true – if the middle ball were yellow, two of the balls would be yellow in total.

**E** is not true, as we have enough information to know that **B** is true.