TSA EXPLAINED ANSWERS

MARK SCHEME

Question	Correct Answer
1	D
2	C
3	D
4	B
5	E
6	C
7	E
8	D
9	E
10	C
11	C
12	B
13	B
14	E
15	A
16	E
17	C
18	B
19	D
20	A
21	D
22	D
23	A
24	B
25	C

Question	Correct Answer
26	D
27	E
28	D
29	B
30	E
31	C
32	C
33	A
34	D
35	B
36	B
37	D
38	D
39	A
40	C
41	D
42	E
43	B
44	C
45	A
46	A
47	A
48	C
49	B
50	E

In this argument, the word 'should' appears in the third sentence. Is this sentence a recommendation that is supported by other statements in the passage?

The first sentence claims that many over the age over 65 are capable of working, and sentences two and four explain the why removing such a ban would benefit some of those aged over 65 and the country as a whole. These claims provide good reasons for stating that some of those aged over 65 should be allowed to work. The final two sentences deals with a possible objection to this recommendation — that we will not be able to remove those aged over 65 that are incapable of working. Thus the final sentence gives an additional reason for the conclusion that the UK should remove the ban on working over 65.

We could summarise the argument as follows: those aged over 65 are capable of working, the country and they would benefit from them working, therefore they should be allowed to work.

D states this conclusion

A is not stated in the argument. The argument has not dealt with issues of fairness. **B**, **C**, and **E** are reasons for the recommendation that is expressed in the main conclusion. Notice that the argument goes beyond stating that removing the ban would be good for the country (**E**), but recommendations a specific action ("we should get rid of them in the UK").
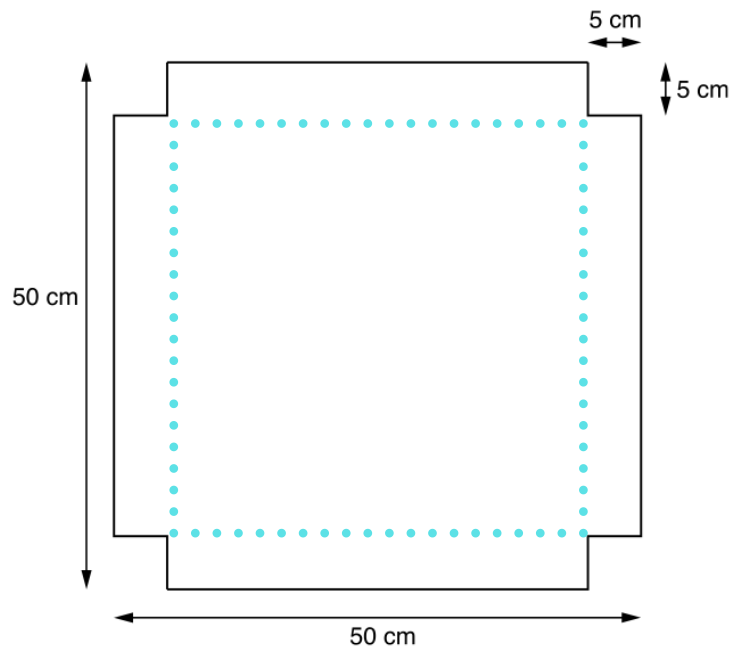
It is useful to draw onto the image, the lines upon which the box will be folded.

Notice that the box is open-topped.
Volume = width x length x height
The height is clearly 5cm.
Find the width:
- Be careful: it is not 50cm!
- 50cm - 5cm - 5cm = 40cm

Find the height:
- Be careful: it is not 50cm!
- 50cm - 5cm - 5cm = 40cm

Volume = 5 * 40 * 40 = 8000cm3
Answer: C

This is a simple question, but there are a few places where you might trip up:
- The width and length are not 50cm! The sides of the net are folded up.
- Check that your answer is in the same units as the question.
- Take care with the maths.

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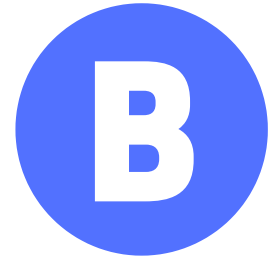
The final sentence tells us that universities should oppose any measure that reduces the quality of graduates.
The first two sentences tell us that shortening degree courses will reduce the quality of graduates.
Therefore, we can conclude that universities should oppose the shortening of degree courses.
Answer: B

A is not supported by the passage. It is possible that university graduates currently have a very poor understanding of their subject, but this would diminish even further with the shortening of degrees.

C is not supported by the passage. It is possible that universities are actually the ones proposing the reduction in course lengths (although the author of the passage thinks they should oppose this).

D is not supported by the passage. The passage does not tell us whether students should oppose or support the change. It could be the case that there are benefits to students that outweigh a reduction in their intellectual development and understanding of the subject (e.g. quicker entry to job market).

E is irrrelevant. The passage does not discuss what standards should be adopted for awarding degrees.

The passage first tells us that depression can be alleviated by drugs, which alters the chemical balance of the brain. It then tells us that they can also be alleviated through psychotherapy. It concludes that psycotherapy alleviates depression without changing the chemical balance of the brain.

In drawing this conclusion, it must be assumed that psycotherapy does not change the chemical balance of the brain.

Answer: E

A is not assumed. The passage simply states that both drugs and psycotherapy can alleviate depression. It does not compare their effectiveness.

B is not assumed, since no conclusion is drawn about whether psycotherapy is preferable to drug use.

C is not assumed. The passage concludes simply that psycotherapy is a viable option for depressed individuals who don't want to change their brain chemistry. It is possible that for those that are willing to change their brain chemistry, psycotherapy combined with drug treatments may be a viable option.

D is not assumed. The passage does not discuss the causes of depression.

There is a lot of information in this question, but do not be overwhelmed.

In this question, we need to find how much Jenny spends using her credit card at the end of the story to buy petrol. We know the rate of petrol, so we just need to find out how much petrol she buys.
Let's go through Jenny's journey to find out:

1. Jenny's warning light has come on.

   a. So she has 5 litres left of fuel.

2. She spend S6 on fuel at 60c/litre

   a. How many litres does she buy?

   b. Divide S6 by S0.6 = 10 litres

   c. New Total: 15 litres

3. She drives 50 km.

   a. How many litres does she use?

   b. Car travels 100k on 8 litres of petrol.

   c. So in 50k, it uses 4 litres.

   d. New Total: 15 - 4 = 11 litres

4. She fills up tank

   a. How many litres does she buy?

   b. Tank maximum is 50 litres; she currently has 11 litres in her tank.

   c. So 50-11=39 litres

5. So how much does it cost?

   a. 39 litres at S0.5

   b. 39 x 0.5 =S**19.50**

This question is essentially asking which country has figures for period 2 and period 3 that are both larger than __half__ of their period 1 figure.

There's a lot of data though. Luckily there are only 5 options.
Work through them in turn:

A. France
- Find half of period 1: 5.4 x 0.5 = 2.7
- Notice Period 3 < ½ of Period 1
  - 2.6 < 2.7
  - **NOT** France

B. UK
- Find half of period 1: 3.6 x 0.5 = 1.8
- Notice Period 2 < Period 1
  - 1.5 < 1.8
  - **NOT** United Kingdom

C. Germany
- Find half of period 1: 4.5 x 0.5 = 2.25
- Notice Period 3 < Period 1
  - 1.6 < 2.25
  - **NOT** Germany

D. Denmark
- Find half of period 1: 4.3 x 0.5 = 2.15
- Notice Period 3 < Period 1
  - 1.7 < 2.15
  - **NOT** Denmark

E. Belgium
- Find half of period 1: 3.3 x 0.5 = 1.15
- Both Period 2 and Period 3 > Period 1
Answer: **E**

A

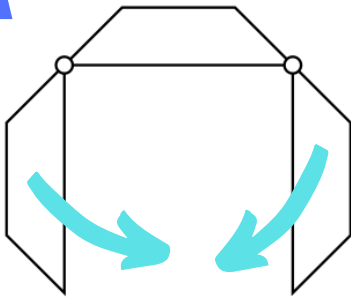B

C

D
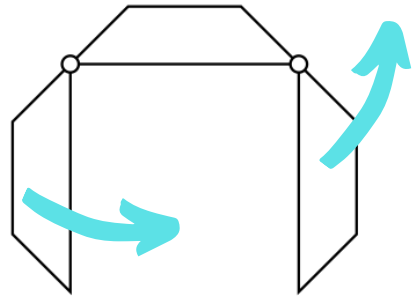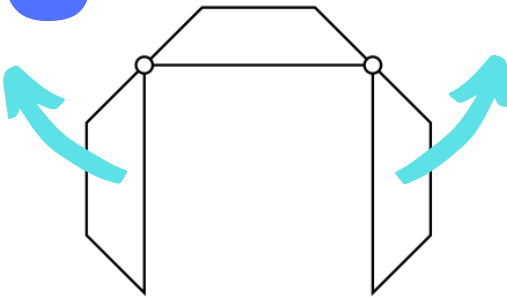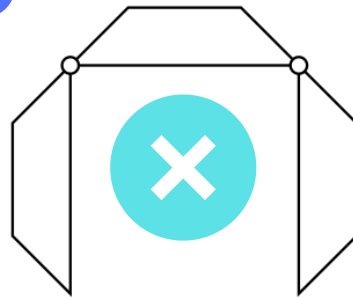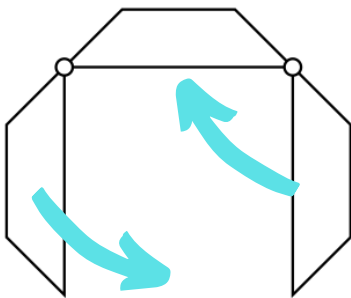
E

The argument concludes that zoos should be shut down and the money saved should be used to protect natural habitats.
The reasons given are that:
1. Zoos are unsuitable places for animals
2. The main reason people visit zoos (to learn about animals) is not fulfilled because the animals are behaving abnormally/neurotically.

In order to powerfully weaken this argument, we need a convincing reason why it is good that zoos are not shut down.

E weakens the argument the most by giving us such a reason: the existence of zoos helps endangered species.
- If this is the case, then it is unclear now whether there are strong grounds overall for shutting down zoos.

Answer: E

A does not weaken the argument, since it is irrelevant.

B does not weaken the argument, since even if schoolchildren learn a great deal about animals from visiting zoos, it is unclear whether what they are learning about the behaviour of animals is accurate. We might wonder whether any other information that might learn from zoos can be learnt elsewhere if zoos are shut down (e.g. from textbooks, internet).

C may weaken the argument, since it gives us a reason to believe the existence of zoos is good. This reason is less convincing than E though. It is not necessarily the case that if zoos are shut down, these animals would have to live in the wild.

D does not weaken the argument, since the money used to protect natural habitats would come from the closing of zoos.

C

From the evidence that periods of intense memory recall seem to increase the size of the parts of the brain responsible for memory, the passage suggests that the brain increases in size and power the more it is used. From this, it concludes that one can increase their IQ simply from taking many IQ tests.

But this conclusion would follow only if what applies to the parts of the brain responsible for memory applies to all parts of the brain. This a major assumption. Answer: C

A is not the flaw. While it is true that London taxi drives are not necessarily representative of the population as a whole, it is unclear why this group's brains would have a unique capacity for growth after periods of intense memory recall that the population as a whole lack.

B is now the flaw. The passage does not make this assumption. It could be that there are several parts of the brain responsible for one's IQ. If it is the case that all these parts can increase in power with use, then it is possible that IQ will increase with practice.

D is not the flaw. The passage does not need to give us a particular number of IQ tests in order to argue that one's IQ will increase with practice of IQ tests.

E is not the flaw. We do not know whether brain size is dependent on the extent of mental activity undertaken. The passage tells us that there is evidence to believe that brain size is necessarily dependent on use.

In this argument, the word 'should' appears in the fourth sentence. Is this sentence a recommendation that is supported by other statements in the passage?

The first three sentences tell us that there is widespread and justified concern about the reliance on expert opinion in law court cases (when experts disagree, risk that more persuasive/charismatic wins wrongly; expert opinion may be due to prejudice more than expertise). The final sentence tells us that expert evidence is different (and necessary for key advances in tackling crime).

Therefore, "we should distinguish sharply between this [expert opinion] and expert evidence".
Answer: C

A, B, D and E are all stated in the passage as reasons to accept this conclusion.

Ionnais walks up the hill to the post office and back.
Label distance to the post office x.

Total time travelling = time spent going up hill + time spent coming down hill.
Time = distance/ speed

Time going up hill = x / 2
- Distance: x
- Speed travelling up hill: 2km per hour

Time going up hill = x /4
- Distance: x
- Speed travelling up hill: 4km per hour

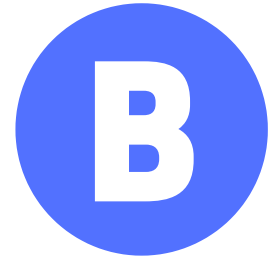Total time = x/2 + x/4 = 3/4 x
Total time = 4.5 hours = 9/2 hours

So
¾ x = 4.5
Rearrange to find x
- x = 9/2 * 4/3
- x = 6 km
Answer: **B**

We need to find the lowest total monthly cost for each plan for each month.

Let's start with the low user tariff:
- It's immediately clear that C is cheaper than A, B and E.
  - Same rental, lowest call charge
- How much does C cost?
  - 100 * 0.55 = £55
- How much does D cost?
  - (100 * 0.45) + 5 = £45 + 5 = £50
- So D is the cheapest if low user tarriff is the way to go

Now let's check how the cheapest medium user tariff compares?
- It's immediately clear that E is cheaper than D
  - Same rental, lowest call charge
- It's also immediately clear that B is cheaper than A and C
  - Same rental, lowest call charge
- How much does B cost?
  - 20 + 100*0.25 = 20 + 25 = £45
- How much does E cost?
  - 10 + 100*0.40 = 10 + 40 = £50
- So B-Medium is cheapest so far of all options.

Now let's check if the cheapest high user tariff is even cheaper?
- It's immediately clear that A is the cheapest
  - Same call charge, lowest rental
- How much does A cost?
  - 50 + 100*0.05 = 50 + 5 = £55
- This is more expensive that B-Medium, so B is the cheapest.
Answer: B

This is a simple algebra question.

a. $100 = l + 2c$
b. $175 = 2l + 3c$

Simultaneous equations
Find c:
    Multiply equation (a) by 2
        $200 = 2l + 4c$
        $175 = 2l + 3c$

    Rearrange both
        $2l = 4c - 200$
        $2l = 3c - 175$

    Make equal
        $4c - 200 = 3c - 175$
    Rearrange to make c the subject
        $c = 25$

    Find l
        Insert known value of c into equation (a)
        $100 = l + 2(25)$
        $100 = l + 50$
        $50 = l$

Now consider options:
    A is true. A small chicken only need 25 pellets a day
    B is true. A large chicken only needs 50 pellets a day.
    C is true.
    D is true. $2l + 4c = 2(50) + 4(25) = 100 + 100 = 200$
    E is false. $3l + 10c = 3(50) + 10(25) = 150 + 250 = 400$
Answer: E

UNiREACH

QU 15

The passage tells us the dishonest acts have a variety of motivations and that these motivations may be consistent with the personality of the person involved. It then lists several examples.

Let's consider the options:

A. Can be drawn.
- There is sufficient evidence in the passage to support the claim that a child who acts dishonestly in one situation may not be dishonest in others.
- e.g. A child lies about feeling unwell to miss a day of school on Friday may not lie about being unwell on Saturday.

B. Cannot be drawn.
- The passage does not state that children have to have commplex reasons to cheat. Its examples include quite simple reasons (e.g. to avoid punishment for academic failure).

C. Cannot be drawn
- The passage does not tell us how to view children's dishonest acts.
- The passage is consistent with the view that all dishonest acts are equally wrong, regardless of the motive.

D. Cannot be drawn.
- The passage actually lists examples of dishonest acts which are not motivated by hostility to others (e.g. stealing to get a birthday present for a sister).

E. Cannot be drawn.
- The passage simply lists a few examples of reasons why children might steal.
- It does not claim to be an exhaustive list.

The passage concludes that the hard shoulder should not be used to relieve congestion during peak traffic hours.
It gives several reasons:
- Inconvenient for emergency services
  - Because difficult for them to reach an accident.
- Won't significaintly reduce congestion
  - Because difficult to remove obstructions caused by broken down vehicles, and congestion rising anyway
- **Most important**: we should seek to maintains Britain' relatively good record of safety on motorways.
  - ....

One reason is given as the most important. Yet this reason is not given any supporting explanation.
In order to be convincing, the passage must assume that Britain's motorways would lose their record of good safety if the proposal is introduced.
This in turn assumes that Britain's record of good safety is in part due to the presence of hard shoulders.
Answer: E

A is not assumed. Britain's record for motorway safety does not have to be the best in Europe. It just has to get worse if hard shoulders are replaced.

B is not assumed. It may be the case that congestion on British motorways is a major issue, but the passage tells us we should care more about motorway safety.

C is not assumed. It is unclear whether the motorways will be more or less congested if the proposal is introduced. If the motorways are less congested, then accidents being less likely to happen would undermine the argument, rather than support it.

D is not assumed. It is not necessary for the passage's conclusion that no changes to the design of British motorways will solve the problem of congestion.

UNiREACH

C

The passage describes speed reading techniques, and then concludes that they are of limited benefit to many readers, particularly students, who need a deep understanding of what they read.

Notice that this argument is making a key assumption that the method these speed reading techniques use is ineffective at providing readers with a deep understanding of what they read. Any claim which undermines this assumption will weaken the argument.

C does this, by suggesting that speed reading techniques actually provide (at least some) readers with an ever deeper understanding
Answer: C

A strengthens the argument. It supports the claim that speed reading techniques do not provide readers with a deep understanding.

B is irrelevant. That speed reading techniques are harder to acquire with age does not affect the conclusion that speed reading is of little benefit to many readers.

D strengthens the argument, by supporting the claim that speed reading techniques cannot be used for deep understanding.

E strengthens the argument, by giving another reason why many people (e.g. those who read for pleasure) would not benefit from such techniques.

B

He spends at least 10c on bubble gum at 2c.

Find minimum he could spend on bubble gum:
- 10c, 5 bubble gum pieces.

Find maximum he could spend on bubble gum.
- This means he spends minimum of cash on other sweets.
    - He spends at least 50c on gobstoppers at 5c. Minimum he could spend:
        - 50c; 10 gobstoppers
    - He spends at least 25c on fruit chews at 3c. Minimum he could spend:
        - 27c; 9 fruit chews
    - How much cash spent: 77c
    - How much cash remaining: 100c - 77c = 23c

- How many pieces of bubble gum could he buy with 23c:
    - 23c/2c = 11.5 pieces. Cannot buy 0.5 pieces.
    - So maximum is 11 pieces.

Answer: B

D

Grandma claims that every country she visited was having a public holiday while she was there.
We need to find the longest chain of public holidays. Let's go month-wise

January: 3 days in a row (28th to 30th in Hong Kong)
- BUT Grandma went to "several countries", so this cannot be the answer.

February, March: no chains longer than 3

April: 5 days in a row
- 9th and 10th in Denmark
- 11th in Israel
- 12th-13th in Italy

We are only interested in finding a chain of 6 now
May, June, July, August, September, October, November, December: clearly no chain of 6
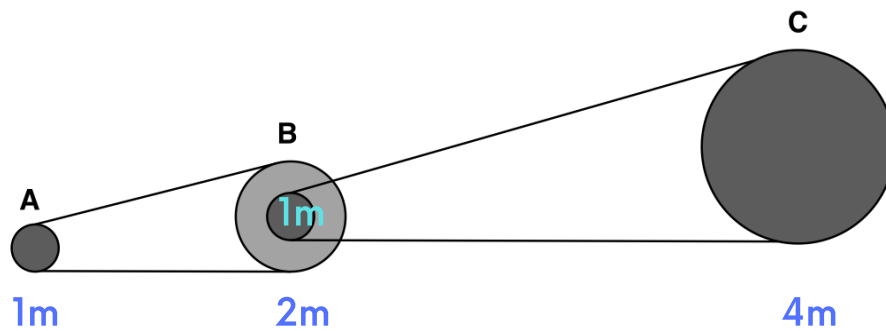
So longest is 5 days
Answer: D

Its useful to annotate the diagram

Pulley A rotates at rate of 8 turns/second
- Each second, pulley A is completing 8 rotations.
- Each second, the belt is moving 8 * 1m = 8m.

Pulley B-large rotates for 8m.
- 8m / 2m = 4
- Pulley B-large rotates 4 times a second
- So does Pulley B-small.

Pulley B-small rotates 4 times per second
- Each second, the belt around pulley B-small travels 4*1m = 4m

Pulley C moves 4m a second.
- 4m / 4m = 1
- Pulley C rotates once per second.

Answer: A

The passage concludes that English schools are deficient in teaching languages. It gives reasons for this:
- Most common explanation for poor performance of English school children at learning foreign languages is that English is so widely spoken in the world.
  - So don't feel need to learn foreign languages when go abroad.
- This explanation isn't persuasive.
  - Even amongst the who have never travelled abroad, English children are outperformed by oversees counterparts in foreign language acquisition.

This argument is unconvincing. It eliminates one possible explanation for English school children's deficiency in foreign languages, and from this concludes that a particular other explanation must be true.

But there are many other explanations that have not been considered at all!
Answer: D

A is not the flaw. The low levels of funding in English schools gives even more reason to believe that English schools are deficient in the teaching of languages, not less.

B is not the flaw. That other languages are widely spoken in the world gives us even more reason to believe that the first explanation is wrong.

C is not the flaw. The passage does two comparisons: English children as a whole vs non-English children as a whole; English children who have never gone abroad vs non-English children who have never gone abroad. English children lose both tests, undermining the first possible explanation that English children are deficient at foreign languages because they do not feel the need to learn other languages when travelling abroad. There is sufficient evidence to doubt the first explanation.

E is not the flaw. The first line states that English school children are poor at learning foreign languages. We do not need further proof.

D

The argument has the following structure:
If I do A, then I will get B. But if I do C, then I will get D. I want D more than B. So I will do C

The structures of each possible answer:
A.
- If I do A, then B. But if I don't do A, then C. I don't want C [or I want B more than C]. I will do A.
- Not the same.

B.
- If I A, then B. If I C, then D. I need A, but I can do A later. So I will do D while I am young.
- Not the same.

C.
- If I A, then B. If I C, then D. I want E [which is necessary for B], but I also do not want to not get D. So I will compromise between A and C.
- Not the same

D.
- If I A, then B. If I C, then D. I want D more than B. So I will do C.
- **Same structure.**

E.
- If I A, then B. But if I A, then I will not C, and if I don't C, then D. So I will not A.
- Not the same.

Answer: D

The passage tells us that mobile phones should not be used freely on trains and in restaurants. The reason given for this is that "that people should treat others in the way they expect to be treated themselves...". Using a mobile freely on trains and in restaurants brings you convenience, but treats others in a way that phone users would not themselves expect to be treated.

Now check which of the possible answers illustrates this principle:

A.
- i.e. You shouldn't make your children listen to your music because you would object if they made you listen to theirs.
- Same principle.

B.
- i.e. Technological progress is inevitable, so we should accept some annoyances for the sake of progress and convenience.
- Not the same principle

C.
- i.e. All paying customers should be treated equally
- Not the same principle

D.
- One person's annoyance is another's convenience; therefore we should more tolerant of others.
- This arrives at a different conclusion. The passage tells us to be more considerate (i.e. don't talk on phones on trains), while this answer tells us to be more tolerant (i.e. don't be annoyed by people talking on trains).

E.
- i.e. We should avoid the stresses of the modern technological world
- Not the same principle.

QU

24

B

16 players in total on Roger's team.
2 players (Roger and the goalkeeper) will be on for the whole game.
16-2 = 14
14 players will be rotating throughout the game.

11 places at any one time.
2 players (Roger and the goalkeeper) will be on for the whole game.
11 - 2 = 9 places
The remaining 9 places will be rotated amongst the 14 players.

Total amount of game time spread across 9 places = game length * no of places
Total amount of game time spread across 9 places = 70 * 9 = 630

Each of 14 players have equal share of total amount of game time spread across 9 places.
630 / 14 = 45
Each of the 14 players spends 45 minutes on the pitch.
Answer: B

Julie, London (GMT-0)
April, lives in New York (GMT-5)
May, lives in Vancouver (GMT-8)
June, lives in Tokyo (GMT+9)

May sends text to April: "Call me on Wednesday at 23:30 your time"
But message was intended for June!

When was May expecting the call?
- At 23:30 in June's Timezone (Tokyo)
- What time is this in May's Timezone (Vancouver)
  - May's timezone - June's timezone:
    - GMT-8 - GMT+9 = -17
    - May's timezone is 17 hours behind June's
    - 23:30 - 17 hours = 06:30
  - May is expecting the call at 06:30 in her timezone (GMT-8)

When does May receive a call?
- At 23:30 in April's Timezone (New York)
- What time is this in May's Timezone (Vancouver)
  - May's timezone - April's timezone:
    - GMT-8 - GMT-5 = -3
    - May's timezone is 3 hours behind April's
    - 23:30 - 3 hours = 20:30
  - May recieves the call at 20:30 in her timezone (GMT-8)

20:30 - 06:30 = +14 hours
May receives the call 14 hours later than she expected.
Answer: C

Let's consider each in turn:

A.Q
- Notice that Q is 30km from R.
- But Nickel is not 30km away from anywhere.
- **NOT** Q

B. R
- Notice that R is 30km from Q.
- But Nickel is not 30km away from anywhere.
- **NOT** R

C. S
- Notice that S is 12km away from V
- But NIckel is not 12km away from anywhere.

Now between T and W
- Is there a location 28km away from both? Yes
- Is there a location 40km away from both? Yes
  - T to V; W to S
- Is there a location 63km away from both? Yes
  - T to U; W to P
- Is there a location 68km away from both? Yes
  - T to W; W to T
- Is there a location 72km away from both? No
  - T to R; but no location 72km away from W

So Nickel is T

Answer: D

The word "should" appears in the final sentence. Is this sentence a recommendation supported by other statements in the passage?

The second and third sentences tells us that overqualification is never a negative, and that cases where "overqualification" is claimed as a reason for failure are really cases of shortcomings in other areas. These claims give good reasons for stating that "applications should not be rejected because they are over-qualified; any explanation for failure should always be in terms of shortcomings".

E expresses this claim.
Answer: E

A, B and C provide reasons for supporting the main conclusion.
D is not stated in the passage. The passage tells us that applicants should not be rejected on the basis of overfulfilling qualification criteria. There may still be good reasons why we should not be honest with unsuccessful applicants when explaining why they were rejected.

The passage first tells us that baby boomers have high life expectancy and gives us reasons why (diet, given up unhealthy activities). It then tells us that the generation of those in 20s and 30s are at risk of serious health problems which might decrease life expectancy and gives us reasons why (diet, unhealthy activities).

From this we can conclude that this younger generation would benefit (at least in terms of life expectancy) from a change in lifestyle choices.
This is expressed by D.

A cannot be drawn. It may be the case that healthy is largely determined by factors outside our control, but that the younger generation's health is still being negatively affected to some extent by their lifestyle choices.

B cannot be drawn. The passage does not tell us that the differences in health and lifestyle are related to health education. It could be the case that health education is becoming more effective, but other factors (e.g. availability of unhealthy foods, sedentary occupations) are also becoming more significant.

C cannot be drawn. The passage states that the younger generation are "in danger" of decreasing their life expectancy. It does not tell us that life expectancy is falling now or will fall in the future.

E cannot be drawn. The passage states that the younger generation are "in danger" of experiencing serious health problems. It is possible that young people will change their lifestyles, avoid these problems and put no greater strain on the health service.

The passage tells us people should be allowed to sell their kidneys in the UK. Why? "this would result in a greater number successful kidney transplants"

It tells us this is necessary because the demand is greater than the supply.

It responds to a potential objection: it would involve rich patients exploiting poor donors.
- This is not very different from supporting one's family by working in dangerous job.
- Some patients buy kidneys + do transplants in other countries, where risks are much greater.

This argument makes the key assumption that abolishing the ban on kidney selling will actually result in an increase in kidney transplants.
This in turn assumes that some people in the UK are willing to donate their kidney. B states this assumption.

A is not assumed. It may be the case that poor people are able to receive kidney transplants, and that demand is greater than supply overall.

C is not assumed. It is stated in the passage that selling one's kidney is comparable to working in a dangerous occupation. This assumes just that selling one's kidney is as dangerous as many occupations, not that it is less dangerous.

D is not assumed. The passage merely states that transplants in other countries involve greater risks to the lives of those involved. This assumes just that they are less successful, not that they are rarely successful.

E is not assumed. The passage states that there will be a greater number of successful transplants, not that supply will now equal demand.

January with 31 days.
How many weeks?
- 31/7 = 4, remainder of 3

Consider if month starts with each day of the week:

```
M T W T F S S        T W T F S S          W T F S S              T F S S
M T W T F S S        M T W T F S S        M T W T F S S        M T W T F S S
M T W T F S S        M T W T F S S        M T W T F S S        M T W T F S S
M T W T F S S        M T W T F S S        M T W T F S S        M T W T F S S
M T W                M T W T              M T W T F            M T W T F S
Only 4 Fridays       Only 4 Fridays       5 Fridays            5 Fridays
```

```
              F S S                S S                  S
M T W T F S S        M T W T F S S        M T W T F S S
M T W T F S S        M T W T F S S        M T W T F S S
M T W T F S S        M T W T F S S        M T W T F S S
M T W T F S S        M T W T F S S        M T W T F S S
5 Fridays            M                    M T
                     Only 4 Fridays       Only 4 Fridays
```

Consider possible answers:

A. Can be true
- The first Friday of the month can occur before the 4th (in fact is must occur before the 4th)

B. Can be true.
- See above

C. Can be true.
- When month starts on a Wednesday.

D. Can be true.
- When month starts on a Friday

E. **Cannot** be true.
- In none of the options, does the month end on a Monday.

Answer: E

Find total expenses.

First, find fixed costs:

- Labour costs:
  - £1200 each * 45 weeks = 54k
    - NOTE: the mention of 6 people is a red flag; there is **total** wages of 1200k across the 6 people
- Rental: 36k
- Other: 9k

Total fixed costs: 36+9+54= 99k

Now find unit costs:

- £5 per meal
- How many meals a year?
  - 5 days a week for lunch (Monday to Friday)
  - 5 days a week for dinner (Tuesday to Saturday)
  - 5+5 = 10 openings a week
  - 20 people per opening: 20*10 = 200 meals a week
  - 2000*45weeks = 9000 meals a year

Total unit costs: 9000*5 = 45k

Total costs: 99k+45k= 144k

Divide total costs per number of meals:

- 144k / 9k meals = £16

Answer: C

C
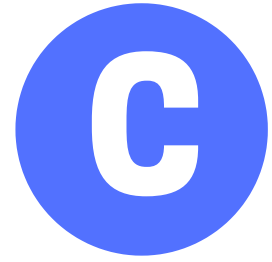
Look at the number of connections per node.
A, B, C, and D all feature four nodes with 3 connections, and 2 nodes with 2 connections.

A

B

C

D

E

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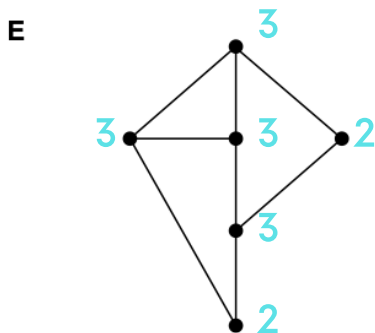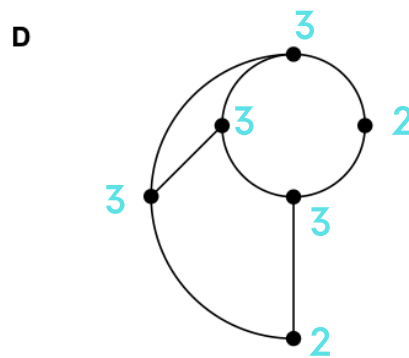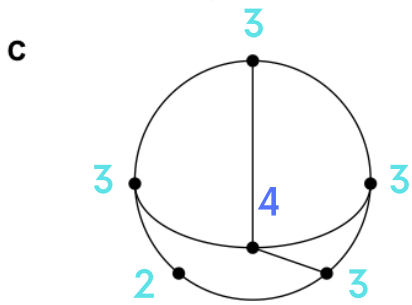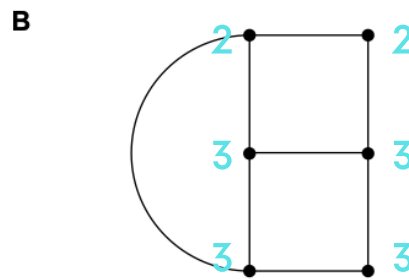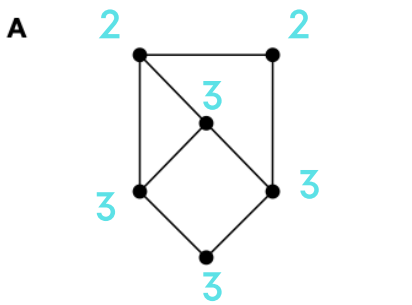
This passage describes a bowl in cricket occurs in reality. It states that scientists could consider such a situation impossible (because of the time required for the necessary though processes and muscle responses). It concludes that "science can all too easily fail to explain things due to its own limitations".

This passage will be weakened by any claim which proves that such a situation has been described inaccurately or that scientists are misinterpreting the situation.

A provides such a claim. Scientists have misinterpreted the situation, which science can in fact explain.
Answer: A

B is irrelevant. It does not affect the argument how the speeds are determined as long as they are accurate.

C provides even more reason to support the argument, by providing an example of a similar situation which science may be unable to explain.

D strengthens the argument by discussing the limitations of science.

E is irrelevant. If the situation described occurs even once, then this undermines our confidence in science to explain all things. It is irrelevant that the situation does not happen frequently.

The passage states that education has declined in the country. It provides as evidence for this recent attainment test scores of 11 year olds (almost half have performed below average). It responds to a possible objection (that standards are improving) by claiming these prove that tests are getting easier. It concludes that we need to return to the teaching and assessment methods of the fifties.

This passage contains several flaws, so it will be easier to consider each possible answer:

A.
- Not a flaw.
- It does not necessarily follow that standards have improved. We need to compare performance with previous years.

B.
- Not a flaw.
- This is irrelevant to the argument.
- If anything, it can be used to strengthen the argument: newer teaching and assessment methods have expanded inequality in outcomes.

C.
- Not a flaw
- The author's attempts at emotional appeal to parents is irrelevant to the validity of the argument.

D.
- A flaw!
- In every test, nearly half of the students will necessarily achieve under-average results.
- This undermines significantly the evidence the passage puts forward for declining educational standards.

E.
- Not a flaw.
- There is not sufficient evidence to support a return to either.

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B

The passage is telling us that the phrase 'morally wrong' is not meaningless, then giving us several reasons to support this view:
- There are some things that we all agree are morally wrong
- There are some things that can be shown to be morally wrong (in the same way that it can be shown that snow is white).

Thus, B is the answer.

The passage disagrees with the statement in A.
C and E are reasons to support the main conclusion.
D is not discussed in the passage.

QU 36

B

First:
- 50 * 400/500 = 40

Second:
- 55 * 600/500 = 66

Third:
- First 500m: 60
- Last 300m: 40 * 300/500 = 24

Total: 40+66+24+60 = 100+90 = 190

Answer: B

D

A 1.6m shrub obscures a 7m bungalow -> 1.6 : 7
How tall must the tree be to obscure a 20m high block of flats?

- Let the tree be x high.
  - $20/x = 7/1.6$
- Rearrange to make x the subject
  - $x = (20*1.6)/7 = 4.57...$

The tree must be at least 4.57m, but not too much higher

The smallest tree larger than 4.57m is the Hornbean (4.8m)
Answer: D

QU 38

D

NOTICE:
- The scale is Northern Island house prices as a **percentage** of UK house prices
- The question: which pieces of information can be **inferred** from the graph?

Consider each of the possible answers:

A. False
- They have fallen as a percentage of UK house prices by 30%

B. False
- It could be the case that only UK house prices outside Ireland are changing, while Northern Ireland prices remain constant

C. False
- Average house prices in the UK (outside Northern Ireland) could have stayed the same over the period shown, with the Northern Ireland prices rising.

D. True
- In 1981-2 and 1984-5, average house prices in Northern Ireland rise compared to those in the UK as a whole.
- Notice: this is the only statement that discusses Northern Ireland house prices as a **percentage** of UK house prices (which is what the graph is showing!)

E. False
- It could be that Northern Ireland prices remained constant throughout this period, but UK house prices rose.

The passage states that severe penalties are used for a deterrent effect, but this effect is only achieve if potential offenders believe that the chances of being detected are moderate or high. Given that people believe that the chance of being detected for drink-driving is small, it may be concluded from this passage that the deterrent affect for this offence is not effective.

This is expressed in A.

B cannot be concluded. It may be the case that the penalties for dink-driving used to be an effective deterrent.

C cannot be concluded. The passage does not tell us what the actual likelihood of offenders being caught is, so we cannot compare this to the perception.

D cannot be concluded. The passage does not give us sufficient reason to recommend an increase in penalties. It suggests that the most important issue is the perceived low chances of detection, rather than the size of the penalties.

E cannot be concluded. It may be the case that all other methods of tackling drink-driving are even less effective.

C

The passage states that athletes expect high pay, but this does nothing to to help future athletes (who need money to achieve their potential).

The passage considers three ways they could receive money for the upcoming athletes:
- The upcoming athletes themselves and their families
    - But some would have to quick due to lack of money
- The taxpayer
- Top athletes
    - A levy

It concludes a levy on top athletes is the only fair way to resolve this.

This passage does not tell us why the general taxpayer subsidising upcoming athletes is unfair. This is a necessary assumption for the argument to work.
Answer: C

A is not assumed. It could be that the majority come from rich backgrounds, but still some athletes would be prevented from succeeding due to lack of money.

B is not assumed. The passage is primarily interested with fairness, not in producing as many winners as possible.

D is not assumed. It may be the case that upcoming athletes have a part-time job alongside training, and still cannot afford to pay for their training.

E is not assumed. Regardless of whether top athletes deserve the large rewards they receive, the passage argues that upcoming athletes deserve a levy from top athletes' pay to support their training.

The passage tells us that there is evidence to suggest children of parents who act aggressively towards them will act aggressively themselves in adulthood. It concludes from this that stopping parents acting aggressively towards their children, will significantly reduce violence in society.

This conclusion is weakened by any claim that proves that these children will still grow up to be violent, or that changing parents' behaviour will actually increase violence in society (e.g. because they act aggressively to strangers instead).

D provides such a claim. It undermines the argument in at least one of the following ways:
- suggesting that the violence of these children once they reach adulthood is a small proportion of total societal violence
- suggesting that these children will grow up to be violent anyway because they are likely to experience continuing poverty and deprivation.

Answer: D

A is irrelevant. The argument discusses the conditional, "if we can. stop parents behaving aggressively towards their children..."

B is irrelavant. Just because many children who were treated violently by their parents make sure not to be violent to their own children, does not mean that they are not violent to others or undermine the claim that stopping parental violence will reduce future violence.

C and E are irrelevant.

Approach 1:
- Every multiple of 3:
    3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48 [16 numbers]
- Add to this, every number which contains 3:
    - Any number ending in 3: 13, 23, 43 [3 numbers]
    - Any number starting in 3: 31, 32, 34, 35, 37, 38, [6 numbers]
- Any number which contains 6:
    - Any number ending in 6: 16, 26, 46 [3 numbers]
- Any number which contains 9:
    - Any number ending in 9: 19, 29, 49 [3 numbers]
Total: 16 + 3 + 6 + 3 + 3 = 16 + 9 + 6 = 31

Approach 2: list every number, and then go through each individually

1 2 3 4 5 6 7 8 9 10 [3 numbers]
11 12 13 14 15 16 17 18 19 20 [6 numbers]
21 22 23 24 25 26 27 28 29 30 [7 numbers]
31 32 33 34 35 36 37 38 39 40 [9 numbers]
41 42 43 44 45 46 47 48 49 [6 numbers]

Total: 3 + 6 + 7 + 9 + 6 = 9 + 16 + 6 = 31

Answer: E
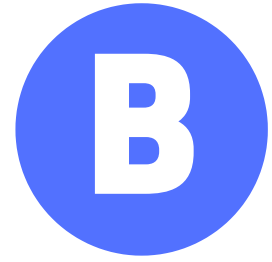
Do not be tricked into doing lots of calculations for this question.

Only 5 days of holiday can be transferred from 1 year to the next.
So lets start with year 9.
- Oliver uses 20 days, but was entiteld to 25.
- So he has 5 days to pass over to the nexy year.

In Year 10, he's entitled to 25 days + the 5 days he has retained, so 30 days.
He has used 5 days.
So he has 25 days left to use.
Answer: B

If you can do this one, please tell me how...

The final line states that "water levels should be regulated by an independent body to enable a balance to be achieved".

The passage gives reasons to support this:

- Agriculture and conservation benefit from marshy conditions
- Cattle farming benefits from drainage of land

Answer: A

B.
- The passage goes further than to recommend a balance be mantained. It suggests a specific policy: an independent body.

C, D and E are reasons to support the main conclusion.

The passage:
- The proportion of time people spend travelling has been constant.
- So an increase in speed means an increase in distance.

A.
- The proportion of people's income spent on mortgage loans has been constant.
- So increase in income means an increase in mortgage loans.
- The same!

B.
- The ratio of mortgage repayments to total expenditure per household has been constant.
- So more expensive food means an increase in debt.
- Not the same -- food prices are not relevant.

C.
- The rate of mortgage interest has been constant.
- So increase in house prices means an increase in inflation.
- Not the same -- inflation is not directly related to the rate of mortgage interest.

D.
- The proportion of the increase of home ownership to the rise in average earnings has been constant.
- So an increase in house building means an increase in earnings.
- Not the same -- notice house building is not the same as home ownership.

E.
- The proportion of new to old homes has been constant
- So an increase in new houses means an increase in old houses being renovated.
- Not the same -- renovation of old homes will not keep the ratio constant.

The passage tells us that the NHS should not inform those at risk because "the risk is small, there is nothing that can be done about this disease, and informing the patient will cause anxiety".

Let's compare to the possible answers:

A.
- Risk is small - yes
- Nothing can be done about it - yes
- Informing will cause anxiety - yes
- THE SAME

B.
- Risk is small - no; they have the illness

C.
- Nothing can be done about it - no; passengers can find alternative travel methods if necessary, inform others they will be late, etc

D.
- Nothing can be done about it - no; they could meet the parent, learn about their parent's background, find out about potential genetic risks, etc

E.
- Nothing can be done about it - no; may be able to improve their performance from learning from their mistakes

A) A·····X·····B··C

C) Not possible. We'll return to why.

B) A···C···B / X

D) C·····X·····B·····A

E) X···A···B···C

Why is C not possible?

A·····X

Now where do we position B?
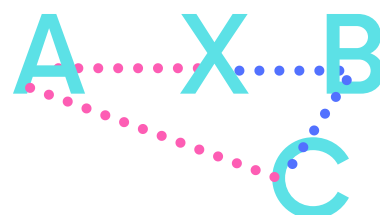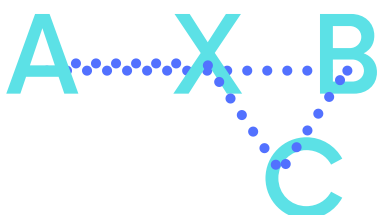
The only place where B can go is directly behind X.
- If B is anywhere else, the line from A to B will be shorter than the line from A to X to B.

A···X···B

A···X / B
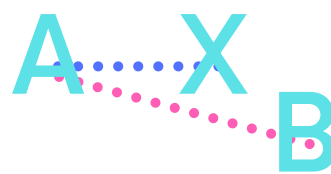
Now where do we position C?

Nowhere!
- Any positioning of C results in a shorter path through the 3 points (e.g. XBCAX)

A···X···B / C

A···X···B / C

Over the course of the summer, Joan uses:
- 100 litres x 25 weeks = 2500 litres

How much does the rainwater butt provide over the summer?
- It starts with 200 litres
- How much does it collect from the roof?
  - The roof receives a total of 160 litres x 25 squared metres = 4000 litres
  - The rainwater butt gets half: 0.5 x 4000 litres = 2000 litres
- Total: 2000 + 200 = 2200 litres

How much mains water does Joan need?
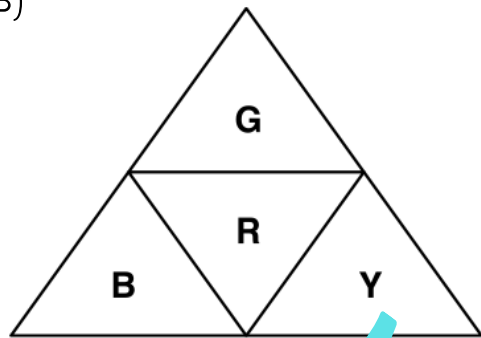- Total water used - total rainwater = 2500 - 2200 = 300 litres
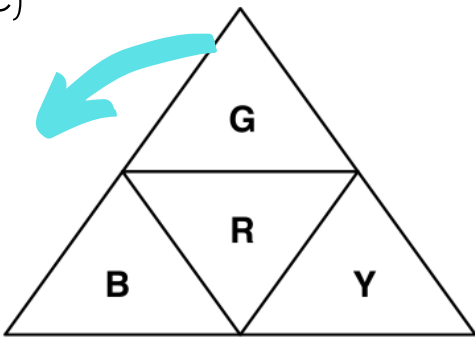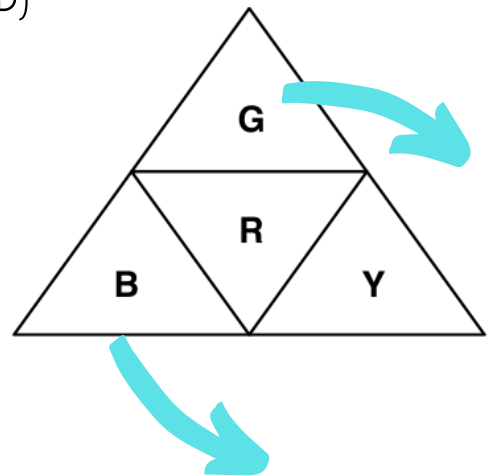
Answer: B

If you can do this one, please tell me how...

A)

B)

C)

D)

E)