

Week 2 Answers

Question 1

As discussed, the best method here is elimination and then trial and error. You can immediately eliminate A and E nice and easily; A because, if an adult ticket is worth 30p, then the most expensive a child ticket could possibly be is 29p, but $30 + 29 + 29 < 120$. Similarly, you can eliminate E because, if an adult ticket is worth 70p, the cheapest a child ticket could be is 36p, but $70 + 36 + 36 > 120$. The same is true of B and D. (The trick for D is to see that $60 + 30 + 30$ does equal 120, but we are told at the start that the child's bus fare is *more* than half the adult fare so that can't be the answer!).

Therefore, the answer must be C! You can quickly see that it is $50p + 35p + 35p$.

Question 2

This is a nice simultaneous equations question. Let x be the normal hourly rate and let y be the overtime hourly rate.

Pierre: $30x + 10y = 700$

Marc: $20x + 5y = 425$

Multiple Marc's by two to get $(40x + 10y = 850)$ and subtract Pierre's from that to get $10x = 150$. Therefore $X = 15$; feed this back into any of the equations and therefore $Y = 25$. So the answer is C.

Question 3

There are lots of ways to do this! I think the easiest way to say that if he has a 15kg bag with $\frac{1}{3}$ sand and $\frac{2}{3}$ coir, then he has 5kg sand and 10kg coir. He needs to be in a position where the 10kg of coir is 40% of the mixture. (You can set up a quick equation if you want: $10 = 0.4x$. Therefore $2.5 = 0.1x$, therefore $x = 25$). If the mixture has to be 25kg and it is currently 15kg, he needs to add another 10kg, therefore the answer is B.

Question 4

Nice simple addition question but be careful about the increments!

He gets 100\$ for lifting 80 kg
for 85 kg he gets an additional 10\$
for 90 kg he gets an additional 15\$
for 95 kg he gets an additional 20\$
for 100 kg he gets an additional 25\$
for 105 kg he gets an additional 30\$

for 110 kg he gets an additional 35\$
If you add all these together you'll get 235\$, which is answer C.

Question 5

People found this trickiest. When you get asked what best summarises the main conclusion, the best approach is to think: if I had to express what this person is saying in just one sentence, what would I say? Alternatively, ask what the “thrust” of the argument is.

Let's first take a look at C: “It is not irresponsible to try to win at all costs”. This cannot be the answer as we are told that the action he took “may have been dangerous and irresponsible” but that he was trying to win at all costs. This means that trying to win at all costs *can* involve irresponsible behaviour, so the answer is not C.

Let's now take a look at B and E. These are both probably true statements (although notice that in the text, it says the other driver “arguably”, not “definitely”, would have done the same). But both statements are used to support another argument. Don't be thrown off the scent and pick B just because the last sentence is similar to B. The real argument in the paragraph is about fairness and the driver's actions.

Let's now take a look at D. This is the closest to the correct answer, but what you need to see is that it is not the conclusion because the author goes on to argue for the view that “It may have been dangerous and irresponsible but it was not unfair”.

Therefore, the answer is A.

Question 6

Plenty of ways to do this again! Start with the fourth sentence: last time she put petrol in (immediately after light came on), she only had \$6 and put it in at \$60c/L. This means that she has 5L when the light comes on and fills the car up with 10L, so she has 15L at that point. Then she drives 50km; we know the car does 100km on 8L, so it will do 50km on 4L. Therefore at that point she has 11L. She then fills the 50L tank completely. $50 - 11 = 39$. So she fills up 39L at 50c/L, $39 \times 0.5 = \$19.50$, therefore **C**.

Question 7

Nobody got this wrong - you just need to go down the list to work out where the numbers in Period 2 and Period 3 are both greater than half of the Period 1 number. The only correct answer is therefore Belgium, so E.

Question 8

Also very tricky. Hopefully my example for you all was useful. Because the Y axis is a ratio and not an absolute value, we can't get any information about absolute values from it.

Let's say that on the Y axis is "My Income as a % of Bao's Income".

In 1980, I make £20 and Bao also makes £20. That means that the Y value is 100, because $20/20 = 1$ (or 100%).

In 1981, I make £25 but Bao makes £32. That means that the Y value is now 78.125, because $25/32 = 0.78125$ (or 78.125%).

In 1982, I make £27 and Bao makes £33. The new Y value is c.81.8%.

What you will hopefully see from this example is that every year, both Bao and I get richer, but the Y value keeps moving up and down *only in relation to the comparison between our incomes*. When the % gap between our incomes is big because Bao makes a lot more than me, the Y value is small. When we make a very similar amount of money, the Y value is big.

Applying this to the answers:

A cannot be true because, as we have seen, everyone's house price could go up and the Y value can still be small.

B cannot be true for the same reason: if I keep getting a bit richer each year, but Bao gets a lot richer every year, we could attain a similar graph.

C is untrue for a similar reason. If I keep getting a lot poorer each year, but Bao gets only a little bit poorer, we could attain a similar graph. So, at the end, Bao's earnings could be lower than when he started! The same is true for E.

Therefore, D is the correct answer. What you will see uniquely about D is that, rather than talking about an *absolute* value, it only talks about the comparison: "in some years, average prices in Northern Ireland rose compared to those in the UK as a whole". This is true because we can see from 1981 to 1982 that the graph trends *upwards*. Therefore, even if both Northern Irish and mainland UK prices fall between 1981 and 1982, the NI prices still rise compared to the UK ones.

We Will Do Questions 9 and 10 next week