

Answer Key

Question	Answer	Question	Answer
1	B	5	E
2	A	6	E
3	A	7	E
4	D	8	E

Worked Answers

1. Let my current salary = x
 My last salary = $0.95x$

Let my friend's salary = y
 My current salary = $1.25y$

Therefore, $x = 1.25y$
 So, my last salary = $0.95x = 0.95(1.25y)$
 $= 1.1875y$

My last salary is greater than my friend's salary by 18.75%

Answer = **B**

2. Attendance of 126 = 50 animals
 Therefore, today, 76 people = 30 animals

Other animals apart from giraffes = 26

Number of hyenas + zebras is 15 or more

Therefore number of tigers is 11 or less

Answer = **A**

3. Total term-time expenditure for students from each college:
 Alabaster student = $(40 \times 4.5) + (2y)$
 Marble student = $55 + (42y)$

Where, y = daily feeding expenses of Marble student

To just break even;

Alabaster student = Marble student

So, $180 + 2y = 55 + 42y$

Therefore $y = 312.5$ pence

But,

To be *economically better off* Marble students must spend < 312.5 pence

To the nearest 5p = 310p = £3.10

Answer = **A**

4. Flask will fill from bottom.

Bottom starts with small cross-section then a larger one and then small again

So it will fill *fast* then *slower* then *fast* again.

Therefore graph will be *steep*, *gentle* then *steep* again.

The only graph that satisfies these conditions is **D**

NOTE: Neglect the fact that the graph flattens out at the end.

Answer = **D**

5. 1. False- most members of group X could belong to group S.

Example: If all members of group Y belonged to group S.

2. False- most members of group S could belong to group X.

Example: If all group S members in group Y also belonged to group X and the non-Y members of group S belonged to group X.

3. False- Although the converse is true, this is not necessarily the case.

Answer = **E**

6. Disease A: 95% = X +ve [1]

5% = X -ve [2]

X +ve: 1% = A +ve [3]

99% = A -ve [4]

X -ve: 00.25% = A +ve [5]

99.75% = A -ve [6]

$$A +ve = X +ve (95\%) + X -ve (5\%)$$

$$\text{So } 10 = 9.5 (X +ve) + 0.5 (X -ve)$$

Since $9.5 = 1\%$ of $X +ve$ people from [3]

$$950 = 100\% \text{ of } X +ve \text{ people}$$

Since $0.5 = 0.25\%$ of $X -ve$ people from [5]

$$200 = 100\% \text{ of } X -ve \text{ people}$$

$$\begin{aligned} \text{Sample size} &= X +ve + X -ve \\ &= 950 + 200 \\ &= 1150 \end{aligned}$$

Answer = **E**

7. Let teaspoon volume be x

x volume of milk is put in Jar A

$(1 - 1/y)$ volume of water is put into Jar B

[where $1/y$ is the fraction of the teaspoon containing milk]

So net volume of milk put in Jar A is $(1 - 1/y)$

Same as volume of water put into Jar B

Answer = **E**

8. 1. False- If there are many more mollians than serpentine then this would be false

2. True- Most serpentine are both mollians and guanadines, there would be some overlap.

3. True- Most serpentine are mollians, so some serpentine are not mollians.

Answer = **E**