Mixed Maths Questions for LIC AAO Pre Exam

Directions: Read the following questions carefully and choose the right answer.

1. The average height of 3 boys Bikesh, Sam and Suhas is 208/3 inches while the average height of Bikesh, Vihal and Rakesh is 203/3 inches. What is the average height of Bikesh, Sam, Suhas, Vihal and Rakesh?

A. 65 inches   B. 66 inches   C. 197/3 inches

D. 64 inches   E. Can't be determined

2. Sonu and Titu entered into a partnership for a year in which Sonu invested Rs 120000 and Titu invested Rs 70000. After 4 months, Sonu invested Rs 80000 more whereas after 5 months, Titu invested Rs 30000 more. When two months were left Sweety also joined investing Rs 400000 as her contribution. If the profit for the year was 12.5% of 1572000, find the share of Sonu, Titu and Sweety.

A. Rs 40000, Rs 104000, Rs 52500

B. Rs 104000, Rs 52500, Rs 40000

C. Rs 52500, Rs 40000, Rs 104000

D. Rs 78420, Rs. 48645, Rs. 48770

E. None of these

3. A man can swim to a place 120 km distant and come back in 35 hours. He finds that he he can swim 6 km against the stream in the same time as 8 km with the stream. Find the ratio of speed of man in still water to that of stream?

A. 5 :2 B. 4 : 7 C. 7 : 1

D. 2 : 9 E. None of these

4. Shilpa took a loan of Rs. 15,00,000 to purchase a car. The company charges compound interest at 20% per annum. She promised to make the payment after three years. But for the last year of loan tenure, the company increased the rate of interest by 25% from the previous one. Then the extra amount which she had to pay is what per cent of the amount of loan taken by her?

A. 8.3% B. 7.9% C. 8.7%

D. 7.2% E. None of these

5. Ajay walked 12 km to reach the station from his house. Then he boarded in a train and reached his destination. The average speed of the entire journey was 62 kmph and he took a total time of 6 hours. If the average speed of train was 120 kmph, then what is the ratio of walking speed of Ajay to the speed of train?

A. 1 : 30 B. 1 : 60 C. 2 : 35

D. 2 : 65 E. None of these

6. In a train, there are three coaches numbered 1 to 3. In the 1st coach the chairs are numbered 101 to 130, in the 2nd coach the chairs are numbered 201 to 220 and in the 3rd coach the chairs

are numbered 301 to 330. The chair occupancy was 50% in 1st coach, 80% in the 2nd coach and 40% in the 3rd coach. The chairs charges are Rs.200, Rs.150 and Rs.300 in each of the coach respectively. Then find the average income per chair in the train?

A. Rs. 112.5   B. Rs. 217.4   C. Rs .128.5

D. Rs. 231.4   E. None of these

7. An exam was conducted in a state over 222 centers. The average number of applicants per centre was found to be 1560. However, it was later realized that in one centre, the number of applicants was counted as 1857 instead of 1747. What was the correct average number of applicants per centre (upto two decimals)?

A. 1557.87   B. 1558.20   C. 1558.92

D. 1559.51   E. 1559.78

8. A chaiwala has 2 types of mixture of tea with him. In 56 kg of first mixture ratio of tea to impurity is 5 : 2 and in 44 kg of second mixture the ratio of tea to impurity is 3 : 1. If he mixes these two mixture with 17 kg of pure tea in a large container, then find the ratio of tea to impurity in the large container.

A. 10 : 3   B. 3 : 1   C. 73 : 27

D. 5 : 3   E. None of these

9. 4 Men can complete a piece of work in 58 days. They started the work together but at the end of every 5th day one man leaves the work and in the place of the man, one woman joins

the work and the women continue doing the work and finish it despite all the men left in the mid of the work. Find the total number of days they take to complete the work in this manner if the efficiency of one women is 25% of the efficiency of one man.

A. 174.5 days   B. 194.5 days   C. 116 days

D. 174 days   E. None of these

10. The respective ratio of the present age of grandfather, father, mother and son is 25 : 14 : 11 : 6. Before 9 years, the ratio of the age of Grandfather and son was 13 : 3 respectively. What will be the average of the age of father and mother after 9 years?

A. 75 years   B. 350 years   C. 375 years

D. 384 years   E. None of these
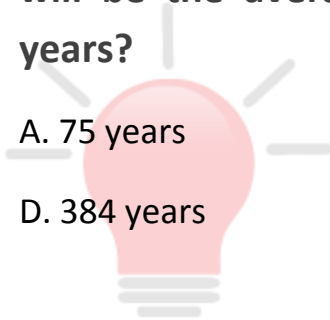
Correct answers:

1	2	3	4	5	6	7	8	9	10
E	B	C	D	A	A	D	A	B	D

Explanations:

1.

Height of 3 boys Bikesh, Sam and Suhas is

$\dfrac{208}{3}$ × 3 = 208 inches.

Height of Bikesh, Vihal and Rakesh is

$\dfrac{203}{3}$ × 3 = 203 inches.

With the help of this information, the height of 5 boys cannot be determined.

Hence, option (E) is correct.

2.

Sonu : Titu : Sweety

(120000 × 4 + 200000 × 8) : (70000 × 5 + 100000 × 7) : (400000 × 2)

208 : 105 : 80

Now,

12.5% of 1572000 = 196500

Therefore, Profit of:

Sonu = $\dfrac{208}{393}$ × 196500 = Rs. 104000

Titu = $\dfrac{105}{393}$ × 196500 = Rs. 52500

Sweety = $\dfrac{80}{393}$ × 196500 = Rs. 40000

Hence, option B is correct.

3.

Let he moves 8 km downstream in x hours.

Downstream speed = $\dfrac{8}{x}$

Upstream speed = $\dfrac{6}{x}$

Then,

$\Rightarrow \dfrac{120}{8/x} + \dfrac{120}{6/x} = 35$

$\Rightarrow 120 \times \dfrac{7x}{24} = 35$

$\Rightarrow 35x = 35$

$\Rightarrow x = 1$

Then downstream speed = 8 km/h

Upstream speed = 6 km/h

$$U = \frac{8 + 6}{2} = 7 \text{ km/h}$$

$$V = \frac{8 - 6}{2} = 1 \text{ km/h}$$

Required ratio = 7 : 1

Hence, option C is correct.

4.

The rate of interest for first two years = 20% per annum

The rate of interest for last one year = 125% of 20 = 25%

According to question-

$\Rightarrow 1500000 \times (1.2)^2 \times (1.25) - 1500000 (1.2)^3$

$\Rightarrow 1500000 \times (1.8 - 1.728)$

$\Rightarrow 1500000 \times 0.072$

$\Rightarrow 108000$

Reqd. % $= \dfrac{108000}{1500000} \times 100 = 7.2\%$

Hence, option D is correct.

5.

Let the time travelled in train be 'x' hours

Total distance = 62 × 6 = 12 + 120 × x

⇒ 372 = 12 + 120x

⇒ x = 3

So, Ajay walked for (6-3) = 3 hours

Walking speed of Ajay

$= \dfrac{\text{Distance covered by walking}}{\text{Time taken by walking}} = \dfrac{12}{3} = 4$ kmph

Required ratio = 4 : 120 = 1 : 30

Hence, option A is correct.

6.

Number of chairs in 1st, 2nd and 3rd coaches are 30, 20 and 30 respectively.

Total chairs = 30 + 20 + 30 = 80

Total occupied chairs in 1st coach = 50% of 30 = 15

Total occupied chairs in 2nd coach = 80% of 20 = 16

Total occupied chairs in 3rd coach = 40% of 30 = 12

Average income $= \dfrac{15 \times 200 + 16 \times 150 + 12 \times 300}{80} = 112.5$

Hence, option A is correct.

7.

Number of applicants that have been counted extra = 1857 − 1747 = 110

Hence, decrease in average = $\dfrac{110}{222}$ = 0.495

∴ Correct average = 1560 − 0.495 = 1559.505 = 1559.51

Hence, option D is correct.

8.

In 56 kg of first mixture, Tea = $56 \times \dfrac{5}{7}$

= 40 kg and impurity = 56 − 40 = 16 kg

In 44 kg of second mixture, Tea = $44 \times \dfrac{3}{4}$

= 33 kg and impurity = 44 − 33 = 11 kg

In large container quantity of pure tea = 40 + 33 + 17 = 90 kg

In large container quantity of impurity = 16 + 11 = 27 kg

Required ratio = 90 : 27 = 10 : 3

Hence, option A is correct.

9.

Total work = 4 × 58 = 232 units (let the efficiency of one man is 1 unit)

Total work was done in the first 5 days

= 5 × 4 = 20 units = $\frac{80}{4}$ units

Now 3 men and one woman will work in the next five days = efficiency of 3m + 1w

$= 3 + \frac{1}{4} = \frac{13}{4}$

Total work was done in the second 5 days

$= 13 \times \frac{5}{4} = \frac{65}{4}$ units

Total work was done in the third 5 days = 2m + 2w

$= 2 + \frac{1}{2} = 5 \times \frac{5}{2} = \frac{25}{2} = \frac{50}{4}$ units

Total work was done in the fourth 5 days = 1m + 3w

$= 1 + \frac{3}{4} = \frac{7}{4} = 7 \times \frac{5}{4} = \frac{35}{4}$ units

After the fourth, 5 days only women will work therefore the total units of work done in the first four, five days = 20 days

$= \frac{80}{4} + \frac{65}{4} + \frac{50}{4} + \frac{35}{4} = \frac{230}{4}$ units

Remaining work = $232 - \frac{230}{4} = \frac{698}{4}$ = 174.5 units

Efficiency of 4 women = $1 \times \frac{4}{4}$ = 1 unit

The number of days taken by 4 women to do 174.5 units = 174.5 days

Total number of days = 174.5 + 20 = 194.5 days

Hence, option B is correct.

10.

The respective ratio of the present age of grandfather, father, mother and son is 25 : 14 : 11 : 6

The ratio of the present age of grandfather and son = 25 : 6

Let us assume it 25x and 6x

According to the question,

$$\frac{25x - 9}{6x - 9} = \frac{13}{3}$$

By solving, x = 30

The age of father + mother = 14x + 11x = 25x = 25 × 30 = 750

After 9 years, the sum of their age = 750 + 18 = 768 years

Average = $\dfrac{768}{2}$ = 384 years

Hence, option D is correct.