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Mixed Maths Questions for IBPS Clerk Pre, SBI Clerk Pre and RRB Asst. Pre Exams.

Word Problems Quiz 2

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

1. In a town males and females are in the ratio 3 : 2. Out of males 25% are children and rest are adults. If the adult male population of the town is 8100, find the total population of the town .

- A. 22000 B. 24000 C. 20000 D. 18000 E. None of these

2. The area of a square is equal to the area of a rectangle of length 28 cm and breadth 7 cm. Find the circumference of the circle whose diameter is equal to the side of the square.

- A. 110 cm B. 44 cm C. 66 cm D. 88 cm E. None of these

3. P, Q and R start running around a circular field having circumference 120 metre at the same time from the same point. Speeds of P, Q and R are 4 m/minute, 8 m/minute and 10 m/minute. Find after how much time, they will meet again at the same point for the first time.

- A. 35 minutes B. 40 minutes C. 45 minutes D. 60 minutes E. None of these

4. Compound interest on a certain sum at the rate of 12% per annum after 2 years is Rs.142464. Find the simple interest on that sum at the rate of 15% per annum for 7 years.

- A. Rs. 588000 B. Rs. 568000 C. Rs. 586000 D. Rs. 566000 E. None of these

5. A mixture contains milk and water in the ratio 7 : 4. If 22 litres of mixture is replaced with water the ratio of milk and water becomes 5 : 6. Find the quantity of milk in the original mixture.

- A. 49 litres B. 42 litres C. 52 litres D. 55 litres E. None of these

6. A shopkeeper sold an item at 12% discount on marked price yet earned a profit of 15%. Marked price of the article is what percent more than the cost price.

- A. 24.24% B. 30.68% C. 32.85% D. 28.46% E. None of these

7. Population of a village increased in first year by 20%, decreased in second year by 15% and again increased in third year by 10%. After three years population of the village is 106590. Find the initial population of the village.

- A. 95000 B. 80000 C. 75000 D. 60000 E. None of these

8. A boat takes 65 hours for travelling upstream from point A to point B and coming back to a point C midway between A and B. If the speed of the stream is 4 km/hr. and the speed of the boat in still water is 16 km/hr. What is the distance between A and C?

- A. 250 km B. 300 km C. 150 km D. 200 km E. None of these

9. A can complete a piece of work in 24 days and B can complete the work in 36 days. Efficiency of C is twice the efficiency of A and B together. Find the number of days in which C can complete the work alone.

- A. $4\frac{1}{5}$ days B. $7\frac{1}{5}$ days C. $5\frac{1}{5}$ days D. $6\frac{1}{5}$ days E. None of these

10. The average weight of 65 students in a class was calculated as 32 kg. It was later found that the weight of two students in the class was wrongly calculated. The actual weight of one of the girls in the class was 26 kg, but it was calculated as 30 kg and the weight of a boy in the class was 42 kg whereas it was calculated as 36 kg. What is the actual average weight of the 65 students in the class?

- A. 31.44 kg B. 32.03 kg C. 31.57 kg D. 33.12 kg E. None of these

Correct Answers:

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

Explanations:

1. Let the total population of the town = y

$$\% \text{ of males} = \frac{3}{5} \times 100\% = 60\%$$

$$\% \text{ of adult males} = \frac{100 - 25}{100} \times 60\% = 45\%$$

$$\frac{45}{100} \times y = 8100$$

$$\Rightarrow y = 8100 \times \frac{100}{45}$$

$$\Rightarrow y = 18000$$

Hence, option (D) is correct.

2. Area of square = $(\text{side})^2$

$$\text{And, Area of rectangle} = 28 \times 7 = 196 \text{ cm}^2$$

Now,

$$(\text{side})^2 = 196 \text{ cm}^2$$

$$\therefore \text{side of square} = 14 \text{ cm}$$

Then, Radius of circle

$$= \frac{\text{side of square}}{2} = \frac{14}{2} = 7 \text{ cm}$$

$$\Rightarrow \text{Radius of circle} = 7 \text{ cm}$$

We know that,

$$\text{Circumference of circle} = 2 \pi (\text{Radius})$$

$$= 2 \times \frac{22}{7} \times 7$$

$$= 44 \text{ cm}$$

Hence, option (B) is correct.

3. Time taken by P to complete one round

$$= \frac{120}{4} = 30 \text{ minutes}$$

Time taken by Q to complete one round

$$= \frac{120}{8} = 15 \text{ minutes}$$

Time taken by R to complete one round

$$= \frac{120}{10} = 12 \text{ minutes}$$

LCM of 30, 15 and 12 = 60

Hence, they will meet after 60 minutes.

Hence, option (D) is correct.

4. We know that

$$CI = P \left[\left(1 + \frac{r}{100} \right)^2 - 1 \right]$$

$$\Rightarrow 142464 = P \left[\left(1 + \frac{12}{100} \right)^2 - 1 \right]$$

$$\Rightarrow 142464 = P \left[\left(1 + \frac{3}{25} \right)^2 - 1 \right]$$

$$\Rightarrow 142464 = P \left[\left(\frac{28}{25} \right)^2 - 1 \right]$$

$$\Rightarrow 142464 = P \frac{784 - 625}{625}$$

$$\Rightarrow P = 142464 \times \frac{625}{159}$$

$$\Rightarrow P = \text{Rs.}560000$$

$$SI = \frac{P \times r \times t}{100}$$

Hence,

$$\text{reqd. SI} = \frac{560000 \times 15 \times 7}{100} = \text{Rs.}588000$$

Hence, option (A) is correct.

5. Let the quantity of milk and water in the original mixture is $7x$ litres and $4x$ litres.

$$\text{Quantity of milk in 22 litres mixture} = \frac{7}{11} \times 22 = 14 \text{ litres}$$

$$\text{Quantity of water in 22 litres mixture} = \frac{4}{11} \times 22 = 8 \text{ litres}$$

According to the question

$$\frac{7x - 14}{4x - 8 + 22} = \frac{5}{6}$$

$$\Rightarrow \frac{7x - 14}{4x + 14} = \frac{5}{6}$$

$$\Rightarrow 42x - 84 = 20x + 70$$

$$\Rightarrow 22x = 154$$

$$\Rightarrow x = \frac{154}{22}$$

$$\Rightarrow x = 7$$

Quantity of milk in the original mixture = $7x = 7 \times 7 = 49$ litres.

Hence, option (A) is correct.

6. **Method I :**

Let the cost price be Rs. $100x$

Profit = 15%

So, Selling price = Rs. $115x$

Discount = 12%

So,

$$\text{So, Marked price} = \text{Rs. } 115x \times \frac{100}{88} = \text{Rs. } 130.68x$$

$$\text{Reqd. \%} = \frac{130.68x - 100x}{100x} \times 100 = 30.68\%$$

Method II:

We know that

$$mp \times (100 - \%d) = cp \times (100 + \%p)$$

$$\Rightarrow mp \times (100 - 12) = cp \times (100 + 15)$$

$$\Rightarrow \frac{mp}{cp} = \frac{115}{88}$$

$$\text{Reqd. \%} = \frac{115 - 88}{88} \times 100 = 30.68\%$$

Hence, option (B) is correct

7. Let initial population of the village = y

According to the question

$$y \times \frac{120}{100} \times \frac{85}{100} \times \frac{110}{100} = 106590$$

$$\Rightarrow y = 106590 \times \frac{100}{110} \times \frac{100}{85} \times \frac{100}{120}$$

$$\Rightarrow y = 95000$$

Hence, option (A) is correct.

8. Let the distance between A and B is $2d$ km

Upstream speed = $16 - 4 = 12$ km/h

Downstream speed = $16 + 4 = 20$ km/h

According to the question

$$\frac{2d}{12} + \frac{d}{20} = 65$$

$$\Rightarrow \frac{10d + 3d}{60} = 65$$

$$\Rightarrow \frac{13d}{60} = 65$$

$$\Rightarrow d = 65 \times \frac{60}{13}$$

$$\Rightarrow d = 300 \text{ km}$$

Hence, option (B) is correct.

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9. Traditional approach:

Let A and B together can complete the work in x days.

$$x \left(\frac{1}{24} + \frac{1}{36} \right) = 1$$

$$\Rightarrow x \frac{3+2}{72} = 1$$

$$\Rightarrow x = \frac{72}{5}$$

Hence, number of days taken by C to complete the work alone

$$= \frac{72}{5} \times \frac{1}{2} = \frac{36}{5} \text{ days} = 7\frac{1}{5} \text{ days}$$

Smart approach:

Total work = LCM of 24 and 36 = 72

$$\text{Efficiency(A)} = \frac{72}{24} = 3$$

$$\text{Efficiency(B)} = \frac{72}{36} = 2$$

$$\text{Efficiency(C)} = (3 + 2) \times 2 = 10$$

Number of days taken by C to complete the work alone

$$= \frac{72}{10} = \frac{36}{5} = 7\frac{1}{5} \text{ days}$$

Hence, option (B) is correct.

10. Sum of the actual weights of all the students in the class = $65 \times 32 - 30 - 36 + 26 + 42$

$$= 2080 - 66 + 68 = 2082$$

Actual average weight of 65 students of the class

$$= \frac{2082}{65} = 32.03 \text{ kg}$$

Hence, option (B) is correct.



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