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

Word Problems Quiz 5

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

1. Find the difference between compound interest and simple interest on a sum of Rs.48000 at the rate of 15% per annum for three years.

A. Rs. 3200 B. Rs. 3204 C. Rs. 3402 D. Rs. 3202 E. None of these

2. Find the volume of a hemisphere whose radius is equal to the side of an equilateral triangle having area $49\sqrt{3}$ cm^2 .

A. 2349.33 cm^3 B. 5749.33 cm^3 C. 4649.33 cm^3 D. 1234.33 cm^3 E. None of these

3. A, B and C start running around a circular field having circumference 144 metre at the same time from the same point. Speeds of A, B and C are 6 m/minute, 8 m/minute and 12 m/minute. Find after how much time, they will meet again at the same point for the first time.

A. 72 minutes B. 36 minutes C. 144 minutes D. 18 minutes E. None of these

4. The income of Suresh and Rakesh are in the ratio 5 : 4 and their expenditure are in the ratio 3 : 2. If each saves Rs. 6000, then Suresh's income can be:

A. Rs. 12000 B. Rs. 15000 C. Rs. 16000 D. Rs. 10000 E. None of these

5. A, B and C entered into a partnership with investment in the ratio 2 : 3 : 4. After one year A doubled his investment and C withdrew half of his amount. After one more year, B doubled his investment. At the end of three years, they earned a profit of Rs.90000. find the share of A in the profit.

A. Rs. 30000 B. Rs. 32000 C. Rs. 10000 D. Rs. 20000 E. None of these

6. Ratio of alcohol and water in a container is 5 : 6. 33 litre of the mixture is replaced by water and the ratio of alcohol and water became 5 : 17. Find the amount of alcohol in the initial mixture.

A. 30 litres B. 36 litres C. 25 litres D. 20 litres E. None of these

7. A boat can travel from point A to point B and return back to point A in 9 hours. Speed of the boat in still water is 8 km/h and the speed of the stream is 4 km/h. Find the distance between A and B.

A. 18 km B. 27 km C. 36 km D. 45 km E. None of these

8. A man and his wife appear in an interview. The probability of husband's selection is 1/7 and the probability of wife's selection is 1/5. What is the probability that only one of them is selected?

A. $\frac{2}{7}$ B. $\frac{1}{25}$ C. $\frac{1}{3}$ D. $\frac{1}{35}$ E. $\frac{1}{49}$

9. A can complete a piece of work in 36 days. Efficiencies of B and C are 1.5 times and 2 times respectively the efficiency of A. Find the number of days taken by all of them to complete the work.

A. 15 days B. 9 days C. 12 days D. 8 days E. None of these

10. A shopkeeper sold an article at a discount of 14% on marked price and incurred a loss of 4% on cost price. Marked price of the article is what percent more than its cost price.

A. 8.34% B. 9.56% C. 11.62% D. 13.23% E. None of these

Correct Answers:

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

Explanations:

1. Traditional approach:

$CI = 48000 \times \frac{115}{100} \times \frac{115}{100} \times \frac{115}{100} - 48000 = 73002 - 48000 = Rs.\ 25002$

$SI = \frac{48000 \times 15 \times 3}{100} = Rs.\ 21600$

Required difference= Rs. (25002 – 21600) = Rs.3402

Smart approach:

We know that, for three years

$CI - SI = P\left(\frac{r}{100}\right)^2 \times \frac{300 + r}{100}$

$CI - SI = 48000\left(\frac{15}{100}\right)^2 \times \frac{315}{100}$

$\Rightarrow CI - SI = 48000 \times \frac{9}{400} \times \frac{315}{100}$

$\Rightarrow CI - SI = Rs.3402$

Hence, option (C) is correct.

2.

Area of an equilateral triangle $= \frac{\sqrt{3}}{4} \times (side)^2$

$\Rightarrow \frac{\sqrt{3}}{4} \times (side)^2 = 49\sqrt{3}$

$\Rightarrow (side)^2 = 196$

$\Rightarrow side = \sqrt{196}$

$\Rightarrow side = 14\ cm$

Radius of the sphere = side of the equilateral triangle = 14 cm

Volume of the hemisphere $= \frac{2}{3}\pi r^3 = \frac{2}{3} \times \frac{22}{7} \times 14 \times 14 \times 14 = 5749.33\ cm^3$

Hence, option (B) is correct.

3. Time taken by A to complete one round

$= \frac{144}{6} = 24$ minutes

Time taken by B to complete one round $= \frac{144}{8} = 18$ minutes

Time taken by C to complete one round $= \frac{144}{12} = 12$ minutes

LCM of 24, 18 and 12 = 72

Hence, they will meet after 72 minutes.

Hence, option (A) is correct.

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4. Let the ratio of their income be 5x and 4x and their expenditure be 3y and 2y.

So, 5x – 3y = 6000 and 4x – 2y = 6000.

On solving the above equations we get x = 3000 and y = 3000

Suresh's income = 5x = Rs. 15000

Hence, option (B) is correct.

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5. Let the investments of A, B and C are Rs.2x, Rs.3x and Rs.4x respectively.

Share of A, B and C in the profit:

A : B : C = (2x + 4x + 4x) : (3x + 3x + 6x) : (4x + 2x + 2x) = 10x : 12x : 8x = 5 : 6 : 4

Share of A in the profit

$= \frac{5}{15} \times 90000 = \text{Rs. } 30000$

Hence, option (A) is correct

6. Let the amount of alcohol and water in the initial mixture is 5x litres and 6x litres respectively.

Amount of alcohol in 33 litres of mixture $= \frac{5}{11} \times 33 = 15$ litres.

Amount of water in 33 litres of mixture $= \frac{6}{11} \times 33 = 18$ litres.

According to the question

$$\frac{5x - 15}{6x - 18 + 33} = \frac{5}{17}$$

$$\Rightarrow \frac{5x - 15}{6x + 15} = \frac{5}{17}$$

$$\Rightarrow 85x - 255 = 30x + 75$$

$$\Rightarrow 55x = 330$$

$$\Rightarrow x = \frac{330}{55}$$

$$\Rightarrow x = 6$$

Amount of alcohol in the initial mixture = $5x = 5 \times 6 = 30$ litres.

Hence, option (A) is correct.

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7. We know that Distance

$$= \text{time taken} \times \frac{(\text{speed of the boat})^2 - (\text{speed of the stream})^2}{(2 \times \text{speed of the boat})}$$

$$\Rightarrow d = 9 \times \frac{8^2 - 4^2}{2 \times 8}$$

$$\Rightarrow d = 9 \times \frac{64 - 16}{16}$$

$$\Rightarrow d = 9 \times \frac{48}{16}$$

$$\Rightarrow d = 27 \text{ km}$$

Hence, option (B) is correct.

8.

Probability of man's selection is $\frac{1}{7}$

Probability of wife 's selection is $\frac{1}{5}$

Probability that any one of them is selected = probability of man's selection and not wife selection or probability of wife's selection not man

Then probability $= \frac{1}{7} \times \left(1 - \frac{1}{5}\right) + \left[\frac{1}{5} \times \left(1 - \frac{1}{7}\right)\right] = \frac{2}{7}$

Hence, option A is correct.

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9. Let the number of days taken by all of them to complete the work = x

Number of days taken by B to complete the work $= \frac{36}{1.5} = 24$ days.

Number of days taken by C to complete the work $= \frac{36}{2} = 18$ days.

According to the question

$x\left(\frac{1}{36} + \frac{1}{24} + \frac{1}{18}\right) = 1$

$\Rightarrow x\frac{2+3+4}{72} = 1$

$\Rightarrow x = \frac{72}{9}$

$\Rightarrow x = 8$ days

Hence, option (D) is correct.

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10. We know that

mp × (100 – %d) = cp × (100 – % l)

$\Rightarrow$ mp × (100 – 14) = cp × (100 – 4)

$\Rightarrow \frac{mp}{cp} = \frac{96}{86}$

Reqd. % $= \frac{96-86}{86} \times 100 = 11.62\%$

Hence, option (C) is correct.