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# Mixed Maths Questions for SBI PO Pre, IBPS PO Pre, IBPS Clerk Mains and SBI Clerk Mains Exams.

## Word Problems Quiz 12

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

1. The marks scored by Prason Joshi in three subjects are in the ratio 4 : 5 : 6. Prason Joshi scored an overall aggregate of 60% in the exam. If the maximum marks in each subject are the same, in how many subjects did Prason Joshi score more than 70% marks?

A. One                      B. Two                      C. Three                      D. Zero                      E. Can't be determined

2. Two trains running in opposite directions cross a pole in 33 seconds and 17 seconds respectively and cross each other in 27 seconds. What is the ratio of their speeds?

A. 3 : 2                      B. 4 : 3                      C. 5 : 4                      D. 5 : 3                      E. None of these

3. Two merchants sell an article for Rs.1,000 each. Merchant A computes his profit on cost price while Merchant B computes his profit on selling price. Both make a profit of 25% each. By how many rupees is the actual profit made by B more than that made by A?

A. Rs. 75                      B. Rs. 60                      C. Rs. 66                      D. Rs. 50                      E. None of these

4. The average expenditure of a worker for 6 months was Rs. 95 and he fell into debt. In the next 4 months by reducing his monthly expenses to Rs. 70 he not only cleared off his debt but also saved Rs. 50. His monthly income is

A. Rs. 85                      B. Rs. 95                      C. Rs. 88                      D. Rs. 90                      E. None of these

5. The average age of a family of five members is 20 years. If the age of the youngest member is 10 years as of now, what was the average age of the family just a day before the birth of the youngest member? Assume that no other members have been added to or removed from this family in this period?

A. 15 years                      B. 12.5 years                      C. 16 years                      D. 11 years                      E. None of these

**6. The area of a square ground is 24200 sq m. A path from point A to point B across the ground is such that it forms a diagonal of the ground. If a boy starts from point A and walks to point B across the diagonal at the rate of 6.6 km/hr, how much time does he take?**

- A. 3 minutes      B. 2 minutes      C. 2 minutes 20 seconds      D. 3 minutes 40 seconds  
E. None of these

**7. Sunil Dutt has some money. He invested 40% of the money in a scheme and deposited the rest in a bank. After 2 years he received 8% of the total money as simple interest. If the interest rate offered by the bank is  $(x-2)\%$  and that by the other investment scheme is  $x\%$ , find the interest rate offered by the bank.**

- A. 3.20%      B. 5%      C. 5.2%      D. 6%      E. None of these

**8. When three brands of milk are mixed in the ratio of 3 : 4 : 5 and 4 : 5 : 6, the cost price of the mixture of milk comes out to be Rs. 20 and Rs. 25 per litre respectively. What will be the cost price (in Rs.) of a litre of mixture of milk in which three brands are mixed in the ratio 6 : 7 : 8?**

- A. 30.70      B. 30.50      C. 29.50      D. 29.70      E. None of these

**9. Two pipes A and B fill a completely empty tank of 10 kilo litres in 5 hours and 4 hours respectively. There is a leak in tank which allows the water to leak at 250 litres per hour. At 8 AM, if in the half filled tank, pipe A is opened for first half an hour, then second pipe is opened and first is closed for the next half an hour, and it is repeated every half an hour, then at what time approximate will the tank be completely filled for the first time?**

- A. 2 hours      B. 2 hours 30 mins      C. 2 hours 34 mins      D. 2 hours 37 mins  
E. None of these

**10. The revenue of three companies A, B and C is in the ratio of 3 : 4 : 5 in 2002 and the ratio of their total expenditures is 6 : 3 : 9. If companies A and C made profits of Rs. 80 crores and Rs. 180 crores respectively. What is the profit of B (in Rs. crores) in 2002?**

- A. Rs. 320 crores      B. Rs. 340 crores      C. Rs. 360 crores      D. Rs. 400 crores      E. None of these

## Correct Answers:

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
A	D	D	D	B	B	A	A	C	B

## Explanations:

- 1.** Let the maximum marks in each subject be 100.  
 $\therefore$  Prashoon Joshi's total score = 60% of  $(100 + 100 + 100) = 0.6(300) = 180$   
Also, 70% marks in a subject correspond to  $0.7(100) = 70$   
Let Prashoon Joshi have scored  $4x$ ,  $5x$  and  $6x$  in the three subjects.  
 $\therefore 4x + 5x + 6x = 180$   
 $\therefore 15x = 180$  i.e.  $x = 12$   
Hence, his marks in the three subjects are 48, 60 and 72 .  
Hence, he has scored more than 70 in exactly one subject.  
Hence, option A is correct.

- 2.** Let the speed of the trains be  $x$  and  $y$  m/s (meters per second) respectively.  
 $\therefore$  Length of first train =  $33x$  and length of second train =  $17y$  meters  
Since the trains run in opposite directions, their relative speed =  $(x + y)$  m/s  
 $\therefore (33x + 17y)/(x + y) = 27$   
 $\therefore 33x + 17y = 27x + 27y$   
 $\therefore 6x = 10y$   
 $\therefore x : y = 10 : 6 = 5 : 3$   
Hence, option D is correct

- 3.** Since B computes actual profit on S.P., actual profit for B = 25% of 1000 = Rs. 250  
Since A computes actual profit on C.P., C.P. for A =  $1000/1.25 = \text{Rs. } 800$   
 $\therefore$  Actual profit for A = 25% of 800 = Rs. 200  
 $\therefore$  Required difference =  $250 - 200 = \text{Rs. } 50$   
Hence, option D is correct.

**4.** We know,  
Average of quantities = sum of all quantities / no. of quantities  
The average expenditure of a worker for 6 months was Rs. 95.  
So, the total expenditure of the worker for 6 months = Rs.  $95 \times 6 = \text{Rs. } 570$

In the next 4 months by reducing his monthly expenses to Rs. 70 he not only cleared off his debt but also saved Rs. 50. So, total expenditure in these 4 months = Rs.  $70 \times 4 = \text{Rs. } 280$

We know,  
Total income – total expenditure = total savings  
 $\Rightarrow$  Total income = total expenditure + total savings  
 $\Rightarrow$  Total income =  $(570 + 280) + 50 = 900$   
So, the total income in 10 months = Rs. 900  
 $\therefore$  His monthly income = Rs.  $(900 / 10) = \text{Rs. } 90$   
Hence, option D is correct.

**5.** At present, total age of the family =  $5 \times 20 = 100$  years

Since the youngest member is currently 10 years old, one day before the birth of the youngest member means 10 years ago.

$\therefore$  Total age of the family one day before the birth of the youngest member =  $[100 - (10 \times 5)] = 50$

Now, we must consider only 4 members since the youngest one isn't born yet (at this point of time)

$\therefore$  Required average age =  $50/4 = 12.5$  years

Hence, option B is correct.

**6.** Side =  $(24200)^{1/2} = (121 \times 100 \times 2)^{1/2} = 110 \times (2)^{1/2}$

$\therefore$  Diagonal =  $110 \times (2)^{1/2} \times (2)^{1/2} = 110 \times 2 = 220$  m

Speed = 6.6 km/hr =  $6.6 \times (1000/60)$  m/min ... (as all the options are in minutes)

= 110 m/min

$\therefore$  Time =  $220/110 = 2$  minutes

Hence, option B is correct.

7. Let the money = y ?

$$y \times 8\% = [y \times 40\% \times x\% \times 2] + [y \times 60\% \times (x - 2)\% \times 2]$$

$$8y \times 100 = [y \times 80x] + [120y (x - 2)]$$

$$800 = 80x + 120x - 240$$

$$200x = 800 + 240$$

$$200x = 1040$$

$$x = 5.20\%$$

$$\text{Interest rate offered by the bank} = 5.20 - 2 = 3.20 \%$$

Hence, option A is correct.

8. Let a, b, c be the cost prices of three brands of milk per litre.

$$\therefore \frac{3a + 4b + 5c}{12} = 20$$

$$\therefore 3a + 4b + 5c = 240$$

$$\text{And } \frac{4a + 5b + 6c}{15} = 25$$

$$\therefore 4a + 5b + 6c = 375$$

$$\therefore [6a + 7b + 8c] = 3 \times [4a + 5b + 6c] - 2 \times [3a + 4b + 5c]$$

$$= 3 \times 375 - 2 \times 240 = 645$$

$\therefore$  Cost price of the mixture of milk which are mixed in the ratio 6 : 7 : 8 per litre

$$= \frac{645}{21} \approx 30.70$$

Hence, option A is correct.

9.

$$\text{Rate of pipe A} = \frac{10000}{5} = 2000 \text{ litres/hour}$$

$$\text{Rate of pipe B} = \frac{10000}{4} = 2500 \text{ litres/hour}$$

Water to be filled = 5000 litres.

Water to be filled every hour = 1000 + 1250 - 250 = 2000 litres.

After 2 hours, 4000 litres will be filled. In the next half an hour, 1000 will be filled but 125 litres remains to be filled, which will be filled by pipe B in approx 4 mins. Hence, total time = 2 hours 34 mins.

Hence, option C is correct.

- 10.** Let the revenue of A, B and C (in Rs. crores) be  $3x$ ,  $4x$  and  $5x$  respectively and their respective expenditures be  $6y$ ,  $3y$  and  $9y$  respectively.

$$\therefore \text{Ratio of profits} = (3X - 6Y) : (4X - 3Y) : (5X - 9Y)$$

The profit of A and C is Rs. 80 crores and Rs. 180 crores respectively.

$$\therefore 3x - 6y = 80 \text{ and } 5x - 9y = 180$$

Solving the two equations;  $x = 120$  and  $y = 140/3$

$$\therefore \text{Profit of B} = (4x - 3y) = 4(120) - 3(140/3) = \text{Rs. } 340 \text{ crores}$$

Hence, option B is correct.



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