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# Mixed maths Word problem Questions for IBPS PO Pre, IBPS SO Pre, IBPS Clerk, SBI PO Pre and SBI Clerk exams

## SBI PO Pre Maths Quiz 6

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

1. In 6 hours the distance covered by Chulbul is 6 km more than the distance covered by Bulbul in 7 hours. In 7 hours the distance covered by Chulbul is 3 km less than the distance covered by Bulbul in 9 hours. In a race of 180 km, by what distance will Chulbul beat Bulbul?

A. 48 km

B. 24 km

C. 30 km

D. 36 km

E. None of these

2. A mobile phone was sold at a profit of 20% on the cost price. If the mobile phone was sold at 10% lower than this price, then the profit would have been Rs. 600 less. At what price should the mobile phone be sold if one wants to gain 25% of the cost price?

A. Rs. 7500

B. Rs. 5000

C. Rs. 6250

D. Rs. 7250

E. None of these

3. Three friends A, B, C started working together on a piece of work. Once half of the work was completed B left the work and then A and C complete the remaining work together in 10 days. If B had worked with A and C together only for 6 days, then in how many days B alone can complete the piece of work?

- A. 25 days                      B. 40 days                      C. 30 days  
D. 20 days                      E. Can't be determined

4. The ratio of length to breadth of a rectangle is 1 : 2. If the length of the rectangle is increased by 20% and again it is decreased by 30% then the area of the rectangle is decreased by 32 sq. cm. What is the perimeter of the original rectangle?

- A. 60 cm                      B. 90 cm                      C. 120 cm  
D. 30 cm                      E. None of these

5. 8 years ago, the ratio of A's age to B's age was 4 : 5. At present the ratio of B's age to C's age is 4 : 5. At present, the difference between A's age and C's age is 20 years, then what is the sum of the ages of A, B and C?

- A. 138 years                      B. 148 years                      C. 164 years  
D. 152 years                      E. None of these

6. A sum of money becomes 4 times of itself at the end of 9 years. Find the ratio between the simple interest obtained at the end of 12 years to that at the end of 15 years if the rate of annum and the sum of money remains constant?

- A. 3 : 2                      B. 4 : 5                      C. 6 : 7  
D. 2.5 : 2                      E. None of these

7. In a school, the average age of boys is 45 years. If 5 new boys whose average age is 30 years, join the school then the average age of boys becomes 42 years. Before the joining of 5 new boys, the number of girls was 20 more than that the number of boys



**Correct answer:**

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

**Explanations:**

**1.**

Let the speed of Chulbul =  $x$  km per hour and the speed of Bulbul =  $y$  km per hour

Distance = speed  $\times$  time

$$6x - 7y = 6 \dots\dots\dots (i)$$

$$9y - 7x = 3 \dots\dots\dots (ii)$$

By solving,  $x = 15$  km per hour and  $y = 12$  km per hour

The time taken by Chulbul to cover 180 km =  $\frac{180}{15} = 12$  hours

The distance travelled by Bulbul in 12 hour =  $12 \times 12 = 144$  km

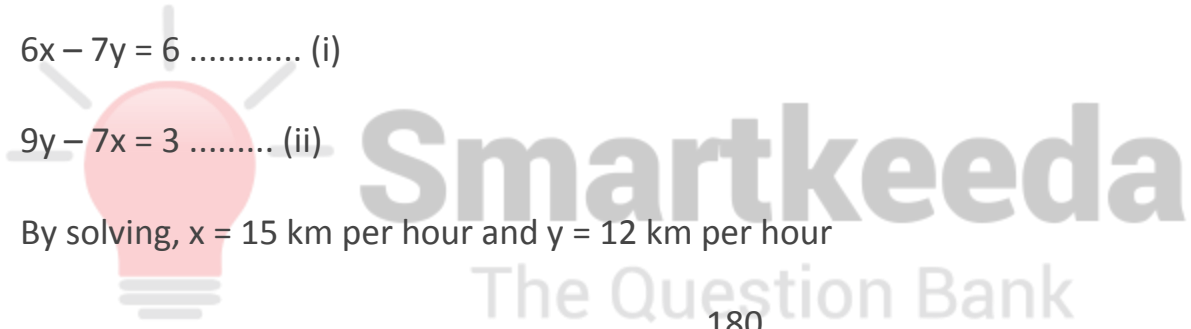
The distance by which Chulbul beats Bulbul =  $180 - 144 = 36$  km

Hence, option D is correct.

**2.**

Let CP = Rs.  $100x$ , then

SP = 120% of  $100x = \text{Rs. } 120x$



If the mobile phone was sold at 10% lower than this price then new SP

$$= (100 - 10)\% \text{ of } 120x$$

$$= 90\% \text{ of } 120x$$

$$= \text{Rs. } 108x$$

According to the question,

$$120x - 108x$$

$$= 12x = 600$$

$$x = 50$$

$$\text{The CP} = 100x = 100 \times 50 = \text{Rs. } 5000$$

The SP when one wants to gain 25% profit

$$= (100 + 25)\% \text{ of } 5000 = 125\% \text{ of } 5000$$

$$= \text{Rs. } 6250$$

Hence, option C is correct.

### 3.

B had worked for 6 days i.e. till half of work was completed it means, A, B, and C together can complete the half of the work in 6 days

Therefore, they together can complete the full work in  $6 \times 2 = 12$  days

A and C together can complete the half of the work together in 10 days it means they together can complete the full work in  $10 \times 2 = 20$  days

The number of days B alone will take to complete the work = x days then

$$\frac{1}{x} = \frac{1}{12} - \frac{1}{20} = \frac{2}{60} = \frac{1}{30}$$

$$x = 30 \text{ days}$$

Hence, option C is correct.

**4.**

Let the length of the rectangle = a cm then breadth = 2a cm

The area of the rectangle = a × 2a sq. cm

When length of increased by 20% then the new length = 120% of a = 1.2a

Again, when it was decreased by 30% then the new length = (100 – 30)% of 1.2 a = 0.7 × 1.2a = 0.84a

$$\text{Area} = 2a \times 0.84a = 1.68a^2$$

According to the question,

$$2a^2 - 1.68a^2 = 0.32a^2 = 32$$

$$a = 10$$

The perimeter = 2(l + b) = 2 × (a + 2a) = 6a = 60 cm

Hence, option A is correct.

**5.**

8 years ago, let A's age = 4a years then B's age = 5a years

At present, B's age =  $5a + 8$  years =  $4x$

$$x = \frac{5a + 8}{4}$$

$$\text{Therefore, C's age} = 5x = \frac{5 \times (5a + 8)}{4} = \frac{25a + 40}{4}$$

According to the question,

$$\frac{25a + 40}{4} - (4a + 8) = 20$$

$$25a + 40 - 16a - 32 = 80$$

$$9a = 72$$

$$a = 8 \text{ years}$$

At present A, age =  $4a + 8 = 40$  years

B's age =  $5a + 8 = 48$  years

$$\text{C's age} = \frac{5}{4} \times 48 = 60 \text{ years}$$

The required sum =  $40 + 48 + 60 = 148$  years

Hence, option B is correct.

**6.**

Let the sum of money = Rs. P

SI = Rs.  $(4P - P) = \text{Rs. } 3P$

$$R = \frac{SI \times 100}{P \times T}$$



$$R = \frac{3P \times 100}{P \times 9} = \frac{100}{3} \% \text{ per annum}$$

SI at the end of 12 years

$$= \frac{P \times R \times T}{100} = \frac{P \times 100 \times 12}{100 \times 3} = 4P$$

SI at the end of 15 years

$$= \frac{P \times R \times T}{100} = \frac{P \times 100 \times 15}{100 \times 3} = 5P$$

The required ratio = 4 : 5

Hence, option B is correct.

**Alternate Solution:-**

As Simple interest is directly proportional to time when P and R are constant so we can say,

$$\text{SI at the end of 12 years} : \text{SI at the end of 15 years} = 12 : 15 = 4 : 5$$

Hence, option B is correct

**7.**

Let the number of boys = x the sum of their age = 45x years

The sum of 5 new boys = 5 × 30 = 150 years

According to the question,

$$45x + 150 = 42 \times (x + 5)$$

$$3x = 42 \times 5 - 150 = 210 - 150 = 60$$

$$x = 20$$

$$\text{The number of girls} = 20 + 20 = 40$$

$$\text{The total number of students} = 40 + 20 = 60$$

$$\text{The sum of the age of all the students} = 60 \times 40 = 2400$$

$$\text{The sum of the age of all the boys} = 20 \times 45 = 900$$

$$\text{The sum} = 2400 - 900 = 1500$$

$$\text{The reqd. average} = \frac{1500}{40} = 37.5 \text{ years}$$

Hence, option C is correct.

**8.**

The area of the square field = 441 sq. m then length of sides = sq. root of 441 = 21 meters

The perimeter =  $21 \times 4 = 84$  cm = perimeter of the rectangular field

The circumradius of the square

$$= \frac{\text{side}}{2} = \frac{21}{2} = 10.5 \text{ m} = \text{breadth of the rectangular field}$$

$$\text{The perimeter of the rectangle} = 2(l + b) = 2 \times (\text{length} + 10.5) = 84$$

$$\text{Length} + 10.5 = 42$$

$$\text{Length} = 31.5 \text{ meters}$$



The area of the rectangular field =  $l \times b = 10.5 \times 31.5 = 330.75$  sq. meters

Hence, option B is correct.

**9.**

Let C's initial investment = Rs.  $1000x$  then

The ratio of their profit =  $12 \times 4000 : 8 \times 10,000 : 1000x \times 3 = 48 : 80 : 3x$

Let A's profit = Rs.  $48a$  then B's profit = Rs.  $80a$  and C's profit =  $3ax = 6300$

$$ax = 2100 \dots\dots\dots (i)$$

According to the question, 1.5 times of (B's share – A's share) =  $6300 \Rightarrow 80a - 48a = 32a = 4200$

$$a = 131.25$$

Put the value of  $a$  in the equation (i)

$$x = \frac{2100}{131.25} = 16$$

Therefore, C's investment =  $1000x = \text{Rs. } 16000$

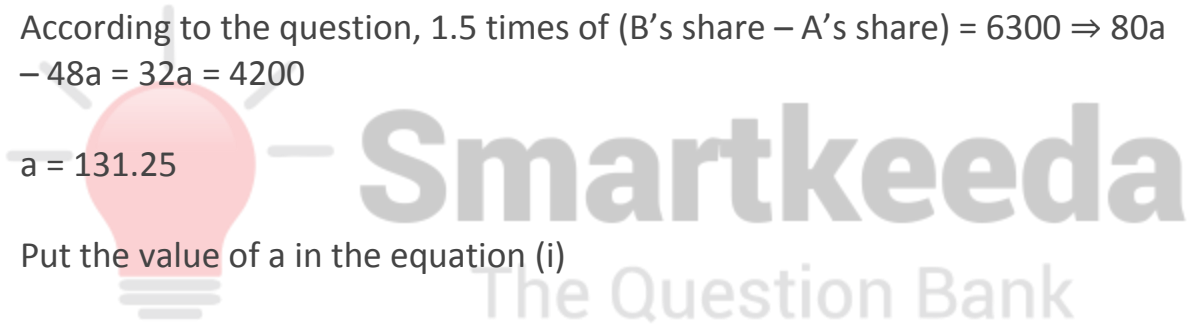
Hence, option C is correct.

**10.**

Let the speed of boat in still water =  $u$  km per hour and the speed of the stream =  $v$  km per hour = 3 km per hour

The speed of the motorboat in downstream =  $u + v$  km per hour and the speed of the motorboat in upstream =  $u - v$  km per hour

Distance = speed  $\times$  time



$$t(u + v) - t(u - v) = 30$$

$$2t \times 3 = 30$$

$$t = 5 \text{ hours}$$

the boat can travel 40 km upstream in  $(t + 5)$  hour

$$\text{It means, speed} = \frac{\text{distance}}{\text{time}} = \frac{40}{5 + 5}$$

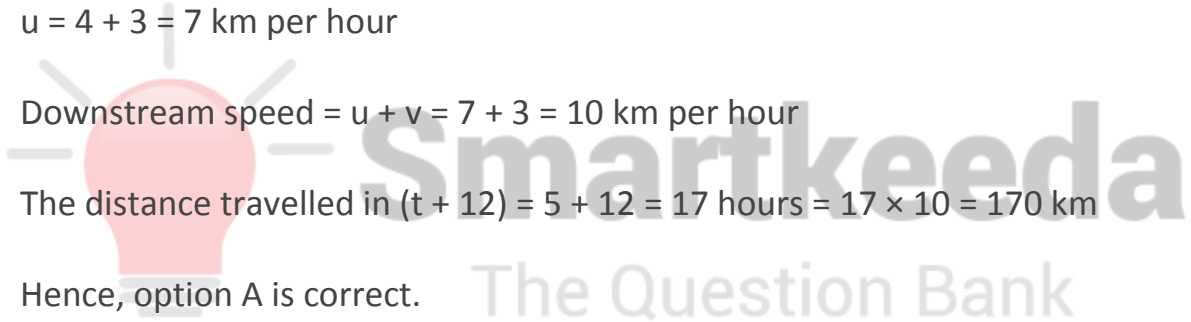
$$= 4 \text{ km per hour} = u - v = u - 3 \text{ km per hour}$$

$$u = 4 + 3 = 7 \text{ km per hour}$$

$$\text{Downstream speed} = u + v = 7 + 3 = 10 \text{ km per hour}$$

$$\text{The distance travelled in } (t + 12) = 5 + 12 = 17 \text{ hours} = 17 \times 10 = 170 \text{ km}$$

Hence, option A is correct.





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