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Mixed Maths Questions for IBPS PO Pre, IBPS Clerk, SBI PO Pre, SBI Clerk Exams

Bank PO Maths Quiz 24

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

1. A, B and C started a business with initial investments in the ratio of 6 : 4 : 5 respectively. After one year A, B and C made additional investments of Rs. 400, Rs. 250 and Rs. 350 respectively. Find the profit share of A out of the total profit of Rs. 3150 after two years.

A. Rs. 1050   B. Rs. 1260   C. Rs. 1580

D. Rs. 1890   E. None of these

2. A vessel contains mixture of milk and water mixed in the ratio 9 : 5 respectively. 56 litres of the mixture is taken out of the vessel and replaced with 19 litres water so that the ratio of the water to milk in the vessel becomes 6 : 7. Find the difference in the initial quantities of milk and water in the vessel.

A. 44 litres   B. 48 litres   C. 52 litres

D. 56 litres   E. None of these

3. 6 years ago, the ratio of the ages of Ganesh and Kartik was 3 : 5, respectively. After 6 years, the ratio of the ages of Kartik and Ganesh would be 4 : 3 respectively. By how many years is Kartik older than Ganesh?

A. 3   B. 5   C. 9

D. 8   E. None of these

4. A sum of Rs. 'x' is distributed among A, B, C and D in the ratio 3 : 2 : 1 : 5. C and D invested their money in a scheme offering simple interest at the rate 12% pa. A and B invested their money in a scheme offering compound interest at the rate 10% pa compounded annually. After 3 years the difference between the interest earned by A and C together and B and D together is Rs. 7,763. Find the value of x.

A. Rs. 66000   B. Rs. 67100   C. Rs. 75900

D. Rs. 77000   E. None of these

5. Two trains, Train X and train Y, travels between station A and station B. One day, train X leaves station A at 8:00 AM and train Y leaves station B at 10:00 AM and after meeting, train X takes 2.5 hours to reach station B while train Y takes 6 hours to reach station A. But on another day, both trains departs from station A and train X leaves 1.5 hours after train Y, and both trains reach station B at the same time. What is the time taken by train X to reach station B from station A?

A. 7.5 hours   B. 6.5 hours   C. 9 hours

D. 6 hours   E. None of these

6. A and B are hired to complete a piece of work for Rs. 5,040. A and B alone can complete the work in 36 days and 42 days respectively. They started working together but after 12 days, A left the job and the remaining work is done by B alone. What was the amount of money received by B?

A. Rs. 2520   B. Rs. 3150   C. Rs. 3360

D. Rs. 3780   E. None of these

7. A person sells two articles in such a way that the cost price of the first article is equal to the selling price of the second article and the selling price of the first article is equal to the cost price of the second article. If on the first article, he makes a profit of Rs. 500 , then what profit/loss did he make on the both articles together?

A. Profit of Rs. 500   B. Loss of Rs. 500   C. Profiit of Rs. 1000

D. Loss of Rs. 1000   E. None of these

8. A and B started a business with the investments of Rs. 1000 and RS. 1200 respectively. After 4 months, A does invests another x% of his initial investment and after another 2 months B withdraws x% of his initial investment. At the end of 1 year A and B divided the profit in equal proportion, then what is the value of x?

A. $15\dfrac{15}{19}$ B. $14\dfrac{16}{19}$ C. $18\dfrac{12}{19}$

A. $18\dfrac{12}{19}$ A. None of these

9. A 600 meters long freight train cross a 400 meters long platform in 20 seconds. If the train increases its speed by 40% and all bogies are separated from the train then how much time will it take to cross a 107 meters long platform. It is given that the length of each bogies is 21 meters and the distance between each bogie is 112 cm which is same as the distance between a bogie and the engine and initially there were 26 bogies.

A. 1.85 seconds   B. 1.70 seconds   C. 1.90 seconds

D. 1.96 seconds   E. None of these

10. A boy can complete a piece of a work in 33 days. The efficiency of a girl is 33.33% less than that of the boy. How many days will they take together to complete the work if on every odd day the boy works at 50% of his initial efficiency?

A. 23.29 days

B. 11.65 days

C. 23.4 days

D. 23.35 days

E. None of these

Correct answers:

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

Explanations:

1.

Let the initial investments of A, B and C are Rs. 6x, Rs. 4x and Rs. 5x respectively.

Ratio of their investments = 6x + 6x + 400 : 4x + 4x + 250 : 5x + 5x + 350 = 12x + 400 : 8x + 250 : 10x + 350

Profit share of A = $\dfrac{12x + 400}{12x + 400 + 8x + 250 + 10x + 350} \times 3150$

$= \dfrac{4\,(3x + 100)}{10\,(3x + 100)} \times 3150 = \dfrac{2}{5} \times 3150 = $ Rs. 1,260

Hence, option B is correct.

2.

Let the initial quantities of milk and water in the vessel are 9x litres and 5x litres respectively.

56 litres milk contains 36 litres milk and 20 litres water

According to question:

$\dfrac{9x - 36}{5x - 20 + 19} = \dfrac{7}{6}$

54x – 216 = 35x – 7

19x = 209

x = 11

So the difference in the initial quantities of milk and water = 4 × 11 = 44 litres

Hence, option A is correct.

3.

Let, present age of Ganesh be 'a' years.

And, present age of Kartik be 'b' years.

So, $\dfrac{a-6}{b-6} = \dfrac{3}{5}$

5a − 30 = 3b − 18

5a − 12 = 3b

Also, $\dfrac{a+6}{b+6} = \dfrac{3}{4}$

4a + 24 = 3b + 18

4a + 6 = 5a − 12

a = 18 years

b = 26 years

Therefore, Kartik is 8 years older than Ganesh.

Hence, option D is correct.

4.

Share of A, B, C and D are 3x/11, 2x/11, x/11 and 5x/11 respectively.

Interest earned by A after 3 years

$$= \frac{3x}{11}\{(1 + 0.10)^3 - 1\} = \text{Rs.} \frac{993x}{11000}$$

Interest earned by B after 3 years

$$= \frac{2x}{11}\{(1 + 0.10)^3 - 1\} = \text{Rs.} \frac{331x}{5500}$$

Interest earned by C after 3 years

$$= \frac{x}{11} \times 0.12 \times 3 = \text{Rs.} \frac{9x}{275}$$

Interest earned by D after 3 years

$$= \frac{5x}{11} \times 0.12 \times 3 = \text{Rs.} \frac{9x}{55}$$

Difference between the interest earned by B and D together and A and C together = Rs 7,763

$$\frac{331x}{5500} + \frac{9x}{55} - \frac{993x}{11000} - \frac{9x}{275} = 7763$$

$$\frac{662x + 1800x - 993x - 360x}{11000} = 7763$$

$$\frac{1109x}{11000} = 7763$$

⇒ x = 77000

So the value of x = Rs. 77,000.

Hence, option D is correct.

5.

Let, time taken by train Y to reach station B from station A be 't' hours

Then, the time taken by train X to reach station B from station A will be 't − 1.5' hours

We know if distance is same then speed is inversely proportional to time taken.

So, ratio of speed of train X to train Y will be 't : t − 1.5'

Let, speed of train X be 'tx' km/h

Then, speed of train Y will be '(t − 1.5)x' km/h

It is given that after meeting, train X takes 2.5 hours to reach station B while train Y takes 6 hours to reach station A.

So, distance between station A and station B = 2.5tx + 6(t − 1.5)x = x(2.5t + 6t − 9) = x(8.5t − 9) km

We know, distance = speed × time

t × (t − 1.5)x = x(8.5t − 9)

t^2 − 1.5t = 8.5t − 9

t^2 − 10t + 9 = 0

$t^2 - 9t - t + 9 = 0$

$t(t - 9) - 1(t - 9) = 0$

$(t - 9)(t - 1) = 0$

t = 9, 1

Since, t cannot be 1 because (t – 1.5) will be negative.

Required time = t – 1.5 = 7.5 hours

Hence, option A is correct.

6.

Let the total work be 252 units (LCM of 36 and 42)

Amount of work done by A alone in one day

$= \dfrac{252}{36} = 7$ units

Amount of work done by A alone in 12 days = 12 × 7 = 84 units

Amount of work done by B = 252 – 84 = 168 units

So, amount received by B = $\dfrac{168}{252}$ × 5040 = Rs. 3,360

Hence, option C is correct.

7.

Let the cost price of the first article = Rs. x = SP of second article

then the selling price of the first article = Rs. (x + 500) = CP of the second article

Therefore, the total cost price of both the article together = Rs. (x + x + 500) = Rs. (2x + 500)

The total selling price of both the article together = Rs. (x + 500 + x) = Rs. (2x + 500)

The total profit he makes on both the article together = 2x + 500 − 2x − 500 = 0

So there is no profit or loss.

Hence, option E is correct.

8.

The ratio of profit = $\dfrac{1000 \times 4 + (1000 + x\% \text{ of } 1000) \times 8}{1200 \times 6 + (1200 - x\% \text{ of } 1200) \times 6} = \dfrac{1}{1}$

7200 − 4000 = 8000 − 7200 + x% of 8000 + x% of 7200

3200 − 800 = x% of (8000 + 7200)

$2400 = x \times \dfrac{15200}{100}$

$x = \dfrac{2400}{152} = \dfrac{300}{19} = 15\dfrac{15}{19}$

Hence, option A is correct.

9.

The speed of the train = $\dfrac{\text{distance}}{\text{time}} = \dfrac{600 + 400}{20}$

$$= \frac{1000}{20} = 50 \text{ meters per second}$$

When its speed was increased by 40% then the new speed = 140% of 50 = 70 meters per seconds

The length of the engine = 600 – [number of bogies × length of each bogies + (number of bogies – 1) × distance between each bogies]

= 600 – (26 × 21 + 25 × 1.12) = 600 – (546 + 28) = 26 meters = the length of each bogies

$$\text{Time} = \frac{\text{distance}}{\text{speed}} = \frac{107 + 26}{70} = \frac{133}{70} = 1.9 \text{ seconds}$$

Hence, option C is correct.

10.

Let the efficiency of boy = 3x then the total work = 3x × 33 = 99x units

The efficiency og the girl = (100 – 33.33)% of 3x = 66.67% of 3x = 2x

The number of units done by the boy and the girl together on the first day i.e. odd day= 1.5x + 2x = 3.5x

The number of units done by the boy and girl together on the second day = 3x + 2x = 5x

The total units of work done by them in the first two days = 5x + 3.5x = 8.5x units

The total units of work done by them in the first 22 days i.e. 11 cycles = 8.5x × 11 = 93.5x units

The remaining number of units = 99x – 93.5x = 5.5x

Now, on 23rd day i.e. on odd days, the boy will do at 50% of his initial efficiency = 1.5x + 2x = 3.5x units of work they will do on the 23rd day
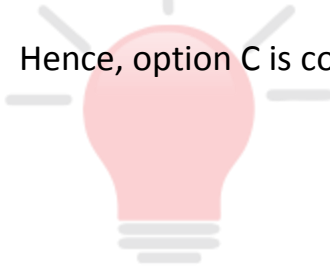
Remaining units of work = 5.5x – 3.5x = 2x units

Now, on 24th day i.e. on even the boy will do at his original efficiency

Therefore, the total number of days they will take to do 2x units of work

$$= \frac{2x}{5x} = \frac{2}{5} = 0.4 \text{ days}$$

Therefore, the total number of days they will take to complete the work = 23 + 0.4 = 23.4 days

Hence, option C is correct.