



Date : 26th Nov 2023

Quantitative Aptitude - Ratio and proportion

English

Q:1 The ratio of milk and water in a solution is 15 : 11 and after adding 9 liters of water in it the ratio of milk and water becomes 6 : 5, then find the final amount of water in the final solution.

1. 49 litres
2. 57 litres
3. 64 litres
4. 75 litres

Q:2 A and B invested in the ratio 5 : 7 in a scheme. A got an additional 20% income from the profit as he was operating that scheme. If the total profit is Rs. 9000 then what was the profit of A (including his additional profit)?

1. Rs. 4940
2. Rs. 5120
3. Rs. 4390
4. Rs. 4800

Q:3 Find the fourth proportional of the numbers 10 : 5 :: 4 : x ?

1. 1
2. 4
3. 8
4. 2

Q:4 Yamini and Priya started a business. Yamini invested Rs.25,000 and Priya invested Rs.20,000. Priya left the business after 8 months and Nisha joined the business with Rs.40,000 after 9 months. In what ratio the profit is divided at the end of the year among Yamini, Priya, and Nisha?

1. 10 : 6 : 3
2. 8 : 3 : 2
3. 20 : 16 : 7
4. 15 : 8 : 6

Q:5 Ram is twice the age of Nikhil. 4 years ago, Nikhil's age was $\frac{3}{4}$ the age of Rahul. If the sum of the present age of all 3 is 81 years. What is the difference in the present age of Ram and Rahul?

1. 14 years
2. 12 years
3. 20 years
4. 18 years

Q:6 What is the value of x, if it is 15% of the fourth proportional to 15, 24, and 75?

1. 8
2. 12
3. 18
4. 23

Q:7 Eight years ago from present, A was four times as old as B. After 8 years from present, A will be twice as old as B. Find their present age.

1. 42, 16
2. 45, 18
3. 42, 18
4. 40, 16

Q:8 A shopkeeper mixes two types of wheat of prices Rs. 25/kg and Rs. 40/kg and sold the whole quantity at 20% profit at Rs. 36/kg. What was the ratio of the quantity of Rs. 40/kg mixture to Rs. 25/kg mixture?

1. 2 : 1
2. 9 : 5
3. 1 : 2
4. 5 : 9

Q:9 At present, the ratio of the age of R and S is 3 : 4 and after 7 years from now, the ratio of their age will be 7 : 8. Find the present age R.

1. $21\frac{1}{4}$ years
2. $19\frac{1}{5}$ years
3. $15\frac{1}{7}$ years
4. $24\frac{1}{9}$ years

Q:10 A milkman gets 50 liters of milk from a sweet shop around the corner. The original is a mixture of milk and water, with water being 10% of the total volume in the mixture. The milkman took out 10 liters of the mixture and replaced it with water, a process he did twice. Find the ratio of the new mixture.

1. M : W = 72 : 53
2. M : W = 36 : 17
3. M : W = 72 : 47
4. M : W = 36 : 13

Answer Key

1. (4)	2. (4)	3. (4)	4. (4)	5. (1)
6. (3)	7. (4)	8. (3)	9. (1)	10. (1)

Answers and Solutions

Q:1 The correct answer is **Option 4** i.e. **75 litres**.

Ratio of milk and water in a solution is 15 : 11.

After adding 9 liters of water ratio of milk and water becomes 6 : 5.

Let the initial amount of milk be 15x and that of water be 11x.

Ratio of milk and water after adding 9 litres =

$$15x/(11x + 9) = 6/5$$

$$\Rightarrow 75x = 6(11x + 9)$$

$$\Rightarrow 75x = 66x + 54$$

$$\Rightarrow 75x - 66x = 54$$

$$\Rightarrow 9x = 54$$

$$\Rightarrow x = 6$$

Final amount of water in the solution = 11x + 9 =

$$11(6) + 9 = 66 + 9 = 75 \text{ litres}$$

Q:2 The correct answer is **option 4** i.e. **Rs. 4800**

Initial profit = Rs. 9000

A got an additional income of 20% = 20% of 9000

$$\Rightarrow 1800$$

Rest profit = 9000 - 1800

$$\Rightarrow 7200$$

Profit of A = 7200 × 5/(5 + 7)

$$\Rightarrow 3000$$

Total profit of A = 3000 + 1800

$$\Rightarrow \text{Rs. 4800}$$

Q:3 The correct answer is **option 4** i.e. **2**.

Formula used :

If a : b :: c : d are in ratio then, $a/b = c/d$ -----
(1)

Calculations :

Let x be the fourth proportional

Using the formula (1), we get

$$\Rightarrow \frac{10}{5} = \frac{4}{x}$$

$$\Rightarrow x = \frac{4}{10} \times 5$$

$$\Rightarrow x = 2$$

Q:4 The correct answer is **option 4** i.e. **15 : 8 : 6**

Effective investment of Yamini = 25000 × 12 = 3,00,000

Effective investment of Priya = 20000 × 8 = 1,60,000

Effective investment of Nisha = 40000 × 3 = 1,20,000

The ratio will be: 300 : 160 : 120 = 15 : 8 : 6

Q:5 The correct answer is **Option 1** i.e. **14 years**.

Let the age of Nikhil be y years and the age of Rahul be z years

So, the age of Ram = 2y years

4 years ago,

Age of Nikhil = (y - 4) years

Age of Rahul = (z - 4) years

Also,

$$\Rightarrow (y - 4) = \frac{3}{4} \times (z - 4)$$

$$\Rightarrow z = \frac{(4y - 4)}{3}$$

Also,

$$\Rightarrow y + 2y + \frac{(4y - 4)}{3} = 81$$

$$\Rightarrow 3y + 6y + 4y - 4 = 243$$

$$\Rightarrow 13y = 247$$

$$\Rightarrow y = 19$$

Hence, age of Nikhil = 19

Age of Ram = (19 × 2) = 38

and age of Rahul = $\frac{(4 \times 19 - 4)}{3} = \frac{72}{3} = 24$ years

Difference in age of Ram and Rahul = (38 - 24) = 14 years

Q:6 The correct answer is **Option 3** i.e. **18**.

Let the fourth proportional to 15, 24, and 75 be y

$$\Rightarrow \frac{15}{24} = \frac{75}{y}$$

$$\Rightarrow y = \frac{75(24)}{15}$$

$$\Rightarrow y = 5 \times 24 = 120$$

$$\Rightarrow x = 15\% \text{ of } y$$

$$\Rightarrow 15\% \text{ of } 120$$

$$\Rightarrow \frac{15(120)}{100}$$

$$\Rightarrow \frac{(1800)}{100} = 18$$

Q:7 The correct answer is **Option 4** i.e. **40, 16**.

Let B's age before 8 years = x and,

A's age before 8 years = 4x

Present age of A = 4x + 8 and, Present age of B = x + 8

After 8 years:



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A's age = $4x + 16$ and, B's age = $x + 16$

After 8 years:

$$4x + 16 = 2(x + 16)$$

$$\Rightarrow 2x = 16$$

$$\Rightarrow x = 8$$

So, their present ages are 40 and 16 years

Q:8 The correct answer is **option 3** i.e. **1 : 2**.

Selling price when the profit is 20% = Rs 36

Actual price = $36/1.2$ = Rs. 30

By using alligation

$$\Rightarrow (30 - 25)/(40 - 30)$$

$$\Rightarrow 5/10 = 1 : 2$$

Q:9 The correct answer is **Option 1** i.e. **$21\frac{1}{4}$ years**.

The present age of R = $3x$ and, the present age of S = $4x$

$$(\text{Present age of R} + 7)/(\text{Present age of S} + 7) = 7/8$$

$$\Rightarrow (3x + 7)/(4x + 7) = 7/8$$

$$\Rightarrow 24x + 56 = 28x + 49$$

$$\Rightarrow 4x = 7$$

$$\Rightarrow x = 7/4$$

Present age of R = $3x = 3(7/4) = 21\frac{1}{4}$ years

Q:10 The correct answer is **Option 1** i.e. **M : W = 72 : 53**.

Given:

Mixture = 50 liters

Amount of water in the mixture = 10% of 50 liters

Replace the mixture with 10 liters of water twice

Now, Amount of milk in mixture = $50 - 10\% \text{ of } 50 = 50 - 5 = 45$ liters

Amount of water = $(50 - 45) = 5$ liters

Ratio of mixture = $45 : 5 = 9 : 1$

Now, the milkman poured out 10 liters of the mixture i.e 9-liter milk, and 1 liter of water

New mixture : milk = $(45 - 9) = 36$ liters

Water = $5 - 1 + 10 = 14$ liters

Ratio of M : W = $36 : 14 = 18 : 7$

Now, the milkman repeats this process:

milkman poured out 10 liters of the new mixture. i.e $(10/25)18 = 7.2$ -liters milk and $(10/25)7 = 2.8$ -liters water

Therefore, amount of milk = $(36 - 7.2) = 28.8$ L

and, amount of water = $50 - 28.8 = 21.2$ L

Ratio of final mixture of M : W = $(28.8) : (21.2) = 72 : 53$