

EXERCISE 11(C)

1. Rs 120 is to be divided between Hari and Gopi in the ratio 5: 3. How much does each get?

Solution:

Given

Total amount = Rs 120

Amount divided between Hari and Gopi in the ratio = 5: 3

Hence,

The sum of ratio is as follows:

$$\begin{aligned}\text{Sum of ratio} &= 5 + 3 \\ &= 8\end{aligned}$$

Hence, Hari's and Gopi's share will be as follows:

$$\begin{aligned}\text{Hari's share} &= (120 \times 5) / 8 \\ &= \text{Rs } 75\end{aligned}$$

$$\begin{aligned}\text{Gopi's share} &= (120 \times 3) / 8 \\ &= \text{Rs } 45\end{aligned}$$

Therefore, Hari get Rs 75 and Gopi get Rs 45

2. Divide 72 in the ratio $2\frac{1}{2} : 1\frac{1}{2}$

Solution:

Given

$$\text{Ratio} = 2\frac{1}{2} : 1\frac{1}{2}$$

Number = 72

The above expression can be written as follows:

$$2\frac{1}{2} : 1\frac{1}{2} = 5 / 2 : 3 / 2$$

We get

$$\begin{aligned}&= 5 / 2 \times 2 : 3 / 2 \times 2 \\ &= 5 : 3\end{aligned}$$

Thus, the sum of ratios is as follows:

$$\begin{aligned}\text{Sum of ratio} &= 5 + 3 \\ &= 8\end{aligned}$$

$$\begin{aligned}\text{First divide} &= 5 / 8 \times 72 \\ &= 45\end{aligned}$$

$$\begin{aligned}\text{Second divide} &= 3 / 8 \times 72 \\ &= 27\end{aligned}$$

3. Divide 81 into three parts in the ratio 2: 3: 4**Solution:**

Given

Number = 81

Ratio = 2: 3: 4

Hence, the sum of ratio is calculated as follows

$$\begin{aligned}\text{Sum of ratios} &= 2 + 3 + 4 \\ &= 9\end{aligned}$$

$$\begin{aligned}\text{First divide} &= 2 / 9 \times 81 \\ &= 18\end{aligned}$$

$$\begin{aligned}\text{Second divide} &= 3 / 9 \times 81 \\ &= 27\end{aligned}$$

$$\begin{aligned}\text{Third divide} &= 4 / 9 \times 81 \\ &= 36\end{aligned}$$

Therefore, 81 can be divided into 18, 27 and 36 in the ratio 2: 3: 4

4. Divide Rs 10, 400 among A, B and C in the ratio 1/ 2: 1/ 3: 1/ 4**Solution:**

Given

Amount = Rs 10400

Amount to be divided into ratio = 1/ 2: 1/ 3: 1/ 4

The L.C.M of 2, 3 and 4 is 12

Hence, given ratio will be as given below

$$\begin{aligned}1 / 2: 1 / 3: 1 / 4 &= 1 / 2 \times 12: 1 / 3 \times 12: 1 / 4 \times 12 \\ &= 6: 4: 3\end{aligned}$$

A's part = $6 / 13 \times 10400$

We get

$$\begin{aligned}&= 6 \times 800 \\ &= 4800\end{aligned}$$

B's part = $4 / 13 \times 10400$

We get

$$\begin{aligned}&= 4 \times 800 \\ &= 3200\end{aligned}$$

C's part = $3 / 13 \times 10400$

We get

$$\begin{aligned}&= 3 \times 800 \\ &= 2400\end{aligned}$$

**5. A profit of Rs 2, 500 is to be shared among three persons in the ratio 6: 9: 10.
How much does each person get?**

Solution:

Given

$$\text{Total profit} = \text{Rs } 2,500$$

$$\text{Ratio} = 6: 9: 10$$

$$\begin{aligned}\text{Sum of ratio} &= 6 + 9 + 10 \\ &= 25\end{aligned}$$

$$\begin{aligned}\text{Share of first person} &= \frac{6}{25} \times 2500 \\ &= 6 \times 100 \\ &= 600\end{aligned}$$

$$\begin{aligned}\text{Share of second person} &= \frac{9}{25} \times 2500 \\ &= 9 \times 100 \\ &= 900\end{aligned}$$

$$\begin{aligned}\text{Share of third person} &= \frac{10}{25} \times 2500 \\ &= 10 \times 100 \\ &= 1000\end{aligned}$$

6. The angles of a triangle are in the ratio 3: 7: 8. Find the greatest and the smallest angles.

Solution:

Given

$$\text{Ratio} = 3: 7: 8$$

We know that

$$\text{Sum of angles of a triangle} = 180^\circ$$

$$\begin{aligned}\text{Sum of ratios} &= 3 + 7 + 8 \\ &= 18\end{aligned}$$

Hence, the angles are calculated as

$$\begin{aligned}\text{Smallest angle} &= \frac{3}{18} \times 180^\circ \\ &= 3 \times 10 \\ &= 30^\circ\end{aligned}$$

$$\begin{aligned}\text{Greatest angle} &= \frac{8}{18} \times 180^\circ \\ &= 8 \times 10 \\ &= 80^\circ\end{aligned}$$

7. The sides of a triangle are in the ratio 3: 2: 4. If the perimeter of the triangle is 27 cm, find the length of each side.

Solution:

Given

$$\text{Ratio of the sides of a triangle is } 3: 2: 4$$

$$\begin{aligned}\text{Sum of ratios} &= 3 + 2 + 4 \\ &= 9\end{aligned}$$

Perimeter of a triangle = 27 cm
Length of first side = $27 / 9 \times 3$
 $= 3 \times 3$
 $= 9$ cm
Length of second side = $27 / 9 \times 2$
 $= 3 \times 2$
 $= 6$ cm
Length of third side = $27 / 9 \times 4$
 $= 3 \times 4$
 $= 12$ cm

8. An alloy of zinc and copper weighs $12 \frac{1}{2}$ kg. If in the alloy, the ratio of zinc and copper is 1: 4, find the weight of copper in it.

Solution:

Given

Weight of an alloy = $12 \frac{1}{2}$ kg
 $= 25 / 2$ kg

Ratio of zinc and copper = 1:4

Sum of ratios = $1 + 4$
 $= 5$

Hence, weight of copper will be as given below

Weight of copper = $4 / 5 \times 25 / 2$ kg
 $= 2 \times 5$
 $= 10$ kg

Therefore, weight of copper in it is 10 kg

9. How will Rs 31500 be shared between A, B and C; if A gets the double of what B gets, and B gets the double of what C gets?

Solution:

Given

Amount = Rs 31500

Let the share of C = 1

Share of B = double of C
 $= 2 \times 1$
 $= 2$

Share of A = double of B
 $= 2 \times 2$
 $= 4$

Therefore, given ratio will be

A: B: C = 4: 2: 1

$$\begin{aligned}\text{Sum of ratios} &= 4 + 2 + 1 \\ &= 7\end{aligned}$$

$$\begin{aligned}\text{A's share} &= 4 / 7 \times 31500 \\ &= 4 \times 4500 \\ &= \text{Rs } 18000\end{aligned}$$

$$\begin{aligned}\text{B's share} &= 2 / 7 \times 31500 \\ &= 2 \times 4500 \\ &= \text{Rs } 9000\end{aligned}$$

$$\begin{aligned}\text{C's share} &= 1 / 7 \times 31500 \\ &= 1 \times 4500 \\ &= \text{Rs } 4500\end{aligned}$$

10. Mr. Gupta divides Rs 81000 among his three children Ashok, Mohit and Geeta in such a way that Ashok gets four times what Mohit gets and Mohit gets 2.5 times what Geeta gets. Find the share of each of them.

Solution:

Given

Amount = Rs 81000

Let the share of Geeta = 1

Share of Mohit is 2.5 times of Geeta

Hence, share of Mohit becomes = 2.5

Share of Ashok is 4 times of Mohit

Hence, share of Ashok becomes = 4×2.5
= 10

Ratio = 1: 2.5: 10

= 1×2 : 2.5×2 : 10×2

= 2: 5: 20

Thus, sum of ratios = $2 + 5 + 20$
= 27

Share of Geeta = $2 / 27 \times 81000$
= 2×3000
= Rs 6000

Share of Mohit = $5 / 27 \times 81000$
= 5×3000
= Rs 15000

Share of Ashok = $20 / 27 \times 81000$
= 20×3000
= Rs 60000