

RD Sharma
Solutions

Class 7

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Exercise 9.3

Q.1 Find which of the following are in proportion?

(i) 33, 44, 66, 88

(ii) 46, 69, 69, 46

(iii) 72, 84, 186, 217

Solution: (i) Given 33, 44, 66, 88

$$\text{Product of extremes} = 33 \times 88 = 2904$$

$$\text{Product of means} = 44 \times 66 = 2904$$

$$\therefore \text{Product of extremes} = \text{Product of means.}$$

hence, numbers are in proportion.

(ii) 46, 69, 69, 46

$$\text{Product of extremes} = 46 \times 46 = 2116$$

$$\text{Product of means} = 69 \times 69 = 4761$$

$$\therefore \text{Product of extremes} \neq \text{Product of means.}$$

hence numbers are not in proportion.

(iii) 72, 84, 186, 217

$$\text{here, Product of extremes} = 72 \times 217 = 15624$$

$$\text{Product of means} = 84 \times 186 = 15624$$

$\therefore$ Yes, They are in proportion.

Q.2 Find x in the following proportions:

(i) $16:18 = x:96$

(ii) $x:92 = 87:116$

Solution (i) $16:18 = x:96$

$$\Rightarrow 16 \times 96 = x \times 18$$

$$\Rightarrow x = \frac{16 \times 96}{18} = \frac{256}{3}$$

$$\text{Thus } x = \frac{256}{3}$$

(ii) $x:92 = 87:116$

$$\therefore x \times 116 = 92 \times 87$$

$$x = \frac{92 \times 87}{116} = 69$$

$$x = 69$$

Q.3 The ratio of the income to the expenditure of family is $7:6$. Find the savings if the income is Rs. 1400.

Solution: Let Income = $7x$
Expenditure = $6x$

Now $7x = 1400$

$$x = \frac{1400}{7} = 200$$

$$\therefore \text{Income} = 7x = 7 \times 200 = \text{Rs. } 1400$$

$$\text{Expenditure} = 6x = 6 \times 200 = \text{Rs. } 1200$$

$$\begin{aligned} \text{Savings} &= \text{Income} - \text{Expenditure} \\ &= 1400 - 1200 \\ &= \text{Rs. } 200 \end{aligned}$$

Q4 The Scale of a map is $1:4000000$. What is the actual distance between the two towns if they are 5 cm apart on the map?

Solution: Given Scale = $1:4000000$

Let actual distance between towns is x cm

$$1:4000000 = 5:x$$

$$\Rightarrow x = 4000000 \times 5$$

$$\Rightarrow x = 20000000 \text{ cm.}$$

$$\Rightarrow x = \frac{20000000}{100000} \text{ Km}$$

$$\therefore 1 \text{ Km} = 1000 \text{ m}$$

$$1 \text{ m} = 100 \text{ cm}$$

$$\therefore 1 \text{ Km} = 100000 \text{ cm}$$

$$\Rightarrow x = 200 \text{ Km}$$

Q.5 The ratio of Income of a person to his Savings is $10:1$. If his savings of one year are Rs. 6000, what is his Income per month?

Solution:

$$\text{Net Income} = 10x$$

$$\text{Savings} = x$$

$$\therefore x = 6000$$

$$\begin{aligned} \text{Therefore Income} &= 10 \times 6000 \\ &= \text{Rs } 60000 \text{ per year} \end{aligned}$$

$$\therefore \text{Income per month} = \text{Rs. } \frac{60000}{12} = \text{Rs. } 5000$$

Q.6 An electric pole casts a shadow of length 20 metres at a time when a tree 6 metres high casts a shadow of length 8 metres. Find the height of the pole.

Solution: length of electric pole shadow = 20m

$$\begin{aligned} \text{height of tree : length of shadow} &= \text{height of pole :} \\ &\text{length of shadow} \end{aligned}$$

$$\Rightarrow x : 20 = 6 : 8$$

$$\Rightarrow x = \frac{120}{8} = 15$$

$$\therefore \text{height of pole} = 15 \text{ metres.}$$