



Ratio and Proportion Ex 9.3 Q1

Answer :

(i) We have

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

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

Therefore, the product of the extremes is equal to the product of the means.

Hence, 33, 44, 66, 88 are in proportion.

(ii) We have

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

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

Therefore, the product of the extremes is not equal to the product of the means.

Hence, 46, 69, 69, 46 are not in proportion.

(iii) We have

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

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

Therefore, the product of the extremes is equal to the product of the means.

Hence, 72, 84, 186, 217 are in proportion.

Ratio and Proportion Ex 9.3 Q2

Answer :

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

$\Rightarrow 16, 18, x,$ and 96 are in proportion.

$\Rightarrow \text{Product of extremes} = \text{Product of means}$

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

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

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

$\Rightarrow x, 92, 87,$ and 116 are in proportion.

$\Rightarrow \text{Product of extremes} = \text{Product of means}$

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

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

Ratio and Proportion Ex 9.3 Q3

Answer :

The ratio of the income of a family to its expenditure = $7 : 6$.

Let us assume that the income and expenditure of the family are ' $7x$ ' and ' $6x$ ', respectively.

But the income = Rs. 1400.

Therefore, $7x = 1400$

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

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

Now, savings = Income - expenditure = Rs. $(1400 - 1200) = \text{Rs. } 200$.

Ratio and Proportion Ex 9.3 Q4

Answer :

The scale of the map = 1 : 4000000.

This means that 1 unit of distance on the map is equal to 4000000 units of the actual distance.

So, let us assume that the actual distance between the towns = 'x' cm.

Now, it is given that

$$1 : 4000000 = 5 : x$$

Hence, 1, 4000000, 5 and x are in proportion.

Therefore, product of extremes = product of means

$$= 1 \times x = 5 \times 4000000$$

$$= x = \frac{5 \times 4000000}{1} = 20000000 \text{ cm}$$

Since 1 km = 1000 m = 1000 × 1 m = 1000 × 100 cm = 100000 cm (1 m = 100 cm),

$$x = \frac{20000000}{100000} = 200 \text{ km}$$

Ratio and Proportion Ex 9.3 Q5

Answer :

Savings in one year = Rs. 6000

So, savings per month = $\frac{6000}{12}$ = Rs. 500.

Let the income per month be Rs 'x'.

Then, x : 500 = 10 : 1.

So, x, 500, 10 and 1 are in proportion.

Product of extremes = Product of means

$$x \times 1 = 10 \times 500$$

$$x = \frac{10 \times 500}{1} = \text{Rs. 5000}$$

Ratio and Proportion Ex 9.3 Q6

Answer :

Length of the shadow of the electric pole = 20 m

Length of the shadow of the tree = 8 m

Height of the tree = 6 m

Now, let us assume that the height of the pole is 'x' m.

Height of the electric pole : length of the shadow of the electric pole = Height of the tree : length of the shadow of the tree

$$x : 20 = 6 : 8$$

Thus, x, 20, 6 and 8 are in proportion.

Product of extremes = Product of means

$$= x \times 8 = 20 \times 6$$

$$= x = \frac{20 \times 6}{8} = 15 \text{ m}$$

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