Ratio and Proportion Ex 9.3 Q1

Answer :

(i) We have

Product of extremes = 33 × 88 = 2904

Product of means = 44 × 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

Product of extremes = 46 × 46 = 2116

Product of means = 69 × 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

Product of extremes = 72 × 217 = 15624

Product of means = 84 × 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.

$\Rightarrow$ Product of extremes = 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.

$\Rightarrow$ Product of extremes = 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 × 200 = Rs. 1200.

Now, savings = Income - expenditure = Rs. (1400 - 1200) = 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 cm
Since 1 km = 1000 m =1000×1 m =1000×100 cm = 100000 cm (1 m =100 cm),
$x = \frac{20000000}{100000}$ = 200 km

Ratio and Proportion Ex 9.3 Q5

Answer :

Savings in one year = Rs. 6000
So, savings per month = $\frac{6000}{12} = \text{Rs. } 500.$
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
$x \times 1 = 10 \times 500$
$x = \frac{10 \times 500}{1}$ = 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 m

********** END **********