



Ratio Proportion and Unitary Method Ex 9.3 Q1

**Answer :**

(i)  $16 : 24 = 20 : 30$

$$\frac{16}{24} = \frac{2}{3} \quad \left( \text{Dividing numerator and denominator by 8} \right)$$

$$\frac{20}{30} = \frac{2}{3} \quad \left( \text{Dividing numerator and denominator by 10} \right)$$

$$\therefore \frac{16}{24} = \frac{20}{30}$$

Thus, the statement is true.

(ii)  $21 : 6 = 35 : 10$

$$\frac{21}{6} = \frac{7}{2} \quad \left( \text{Dividing numerator and denominator by 3} \right)$$

$$\frac{35}{10} = \frac{7}{2} \quad \left( \text{Dividing numerator and denominator by 5} \right)$$

$$\therefore \frac{21}{6} = \frac{35}{10}$$

Thus, the statement is true.

(iii)  $12 : 18 = 28 : 12$

$$\frac{12}{18} = \frac{2}{3} \quad \left( \text{Dividing numerator and denominator by 6} \right)$$

$$\frac{28}{12} = \frac{7}{3} \quad \left( \text{Dividing numerator and denominator by 4} \right)$$

$\therefore \frac{16}{24}$  and  $\frac{20}{30}$  are not equal.

Thus, the statement is not true.

(iv)  $51 : 58 = 85 : 102$

$$\frac{51}{58}$$

And  $\frac{85}{102} = \frac{5}{6}$  (Dividing numerator and denominator by 17)

$\therefore \frac{51}{58}$  is not equal to  $\frac{85}{102}$ .

Thus, the statement is not true.

(v) 40 men : 200 men = Rs 5 : Rs 25

$$\frac{40}{200} = \frac{1}{5} \text{ (Dividing numerator and denominator by 40)}$$

$$\frac{5}{25} = \frac{1}{5} \text{ (Dividing numerator and denominator by 5)}$$

$$\therefore \frac{40}{200} = \frac{5}{25}$$

Thus, the statement is true.

(vi) 99 kg : 45 kg = Rs 44 : Rs 20

$$\frac{99}{45} = \frac{11}{5} \text{ (Dividing numerator and denominator by 9)}$$

$$\frac{44}{20} = \frac{11}{5} \text{ (Dividing numerator and denominator by 4)}$$

$$\therefore \frac{99}{45} = \frac{11}{5}$$

Thus, the statement is true.

Ratio Proportion and Unitary Method Ex 9.3 Q2

**Answer :**

(i) Consider  $\frac{8}{16} = \frac{1}{2}$

$$\text{And } \frac{6}{12} = \frac{1}{2}$$

$$\therefore 8 : 16 = 6 : 12$$

$\therefore 8, 16, 6, 12$  are in proportion.

(ii) Consider  $\frac{6}{2} = \frac{3}{1}$

$$\text{And } \frac{4}{3}$$

$$\therefore 6 : 2 \neq 4 : 3$$

$\therefore 6, 2, 4, 3$  are not in proportion.

(iii) Consider  $\frac{150}{250} = \frac{3}{5}$  (Dividing numerator and denominator by 50)

$$\text{And } \frac{200}{300} = \frac{2}{3} \text{ (Dividing numerator and denominator by 100)}$$

$$\therefore 150 : 250 \neq 200 : 300$$

$\therefore 150, 250, 200, 300$  are not in proportion.

Ratio Proportion and Unitary Method Ex 9.3 Q3

**Answer :**

$$(i) x : 6 = 55 : 11$$

$$\Rightarrow \frac{x}{6} = \frac{55}{11}$$

$$\Rightarrow \frac{x}{6} = \frac{5}{1}$$

$$\Rightarrow x = 5 \times 6 = 30$$

$$(ii) 18 : x = 27 : 3$$

$$\Rightarrow \frac{18}{x} = \frac{27}{3}$$

$$\Rightarrow \frac{18}{x} = \frac{9}{1}$$

$$\Rightarrow x = \frac{18}{9} = 2$$

$$(iii) 7 : 14 = 15 : x$$

$$\Rightarrow \frac{7}{14} = \frac{15}{x}$$

$$\Rightarrow \frac{1}{2} = \frac{15}{x}$$

$$\Rightarrow x = 15 \times 2 = 30$$

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

$$\Rightarrow \frac{16}{18} = \frac{x}{96}$$

$$\Rightarrow \frac{8}{9} = \frac{x}{96}$$

$$\Rightarrow x = \frac{8}{9} \times 96 = \frac{256}{3}$$

**Answer :**

All proportions are:

$$9 : 150 = 3 : 50$$

$$9 : 105 = 3 : 35$$

$$9 : 1750$$

$$150 : 105 = 10 : 7$$

$$150 : 1750 = 3 : 35$$

$$105 : 1750 = 3 : 50$$

Thus, all proportions that can be formed are:

3 : 50, 3 : 35, 10 : 7, 9 : 1750, 1750 : 9, 7 : 10, 35 : 3 and 50 : 3

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