



## NCERT SOLUTIONS FOR CLASS 6 MATHS RATIOS AND PROPORTIONS EXERCISE 12.2

### Question 1:

Determine if the following are in proportion.

(a) 15, 45, 40, 120 (b) 33, 121, 9, 96

(c) 24, 28, 36, 48 (d) 32, 48, 70, 210

(e) 4, 6, 8, 12 (f) 33, 44, 75, 100

Answer:

(a) 15, 45, 40, 120

$$\frac{15}{45} = \frac{1}{3}, \frac{40}{120} = \frac{1}{3}$$

Therefore, 15: 45 = 40: 120

Hence, these are in proportion.

(b) 33, 121, 9, 96

$$\frac{33}{121} = \frac{3}{11}, \frac{9}{96} = \frac{3}{32}$$

Therefore, 33: 121  $\neq$  9: 96

Hence, these are not in proportion.

(c) 24, 28, 36, 48

$$\frac{24}{28} = \frac{6}{7}, \frac{36}{48} = \frac{3}{4}$$

Therefore, 24: 28  $\neq$  36: 48

Hence, these are not in proportion.

(d) 32, 48, 70, 210

$$\frac{32}{48} = \frac{2}{3}, \frac{70}{210} = \frac{1}{3}$$

Therefore, 32: 48  $\neq$  70: 210

Hence, these are not in proportion.

(e) 4, 6, 8, 12

$$\frac{4}{6} = \frac{2}{3}, \frac{8}{12} = \frac{2}{3}$$

Therefore, 4: 6 = 8: 12

Hence, these are in proportion.

(f) 33, 44, 75, 100

$$\frac{33}{44} = \frac{3}{4}, \frac{75}{100} = \frac{3}{4}$$

Therefore, 33: 44 = 75: 100

Hence, these are in proportion.

**Question 2:**

Write True (T) or False (F) against each of the following statements:

(a) 16:24::20:30 (b) 21:6::35:10

(c) 12:18::28:12 (d) 8:9::24:27

(e) 5.2:3.9::3:4 (f) 0.9:0.36::10:4

Answer:

(a) 16: 24:: 20: 30

$$\frac{16}{24} = \frac{2}{3}, \frac{20}{30} = \frac{2}{3}$$

Therefore, 16: 24 = 20: 30

Hence, True

(b) 21: 6:: 35: 10

$$\frac{21}{6} = \frac{7}{2}, \frac{35}{10} = \frac{7}{2}$$

Therefore, 21: 6 = 35: 10

Hence, True

(c) 12: 18:: 28: 12

$$\frac{12}{18} = \frac{2}{3}, \frac{28}{12} = \frac{7}{3}$$

Therefore, 12: 18  $\neq$  28: 12

Hence, False

(d) 8: 9:: 24: 27

$$\frac{24}{27} = \frac{3 \times 8}{3 \times 9} = \frac{8}{9},$$

Therefore, True

(e) 5.2: 3.9:: 3: 4

$$\frac{5.2}{3.9} = \frac{4}{3},$$

As

Therefore, 5.2: 3.9  $\neq$  3: 4

Hence, False

(f) 0.9: 0.36:: 10: 4

$$\frac{0.9}{0.36} = \frac{90}{36} = \frac{10}{4}$$

Therefore, 0.9: 0.36 = 10: 4

Hence, True

**Question 3:**

Are the following statements true?

(a) 40 persons: 200 persons = Rs 15: Rs 75

(b) 7.5 litres: 15 litres = 5 kg: 10 kg

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

(d) 32 m: 64 m = 6 sec: 12 sec

(e) 45 km: 60 km = 12 hours: 15 hours

Answer:

(a) 40 persons: 200 persons = Rs 15: Rs 75

$$\frac{40}{200} = \frac{1}{5}, \quad \frac{15}{75} = \frac{1}{5}$$

True

(b) 7.5 l: 15 l = 5 kg: 10 kg

$$\frac{7.5}{15} = \frac{1}{2}, \quad \frac{5}{10} = \frac{1}{2}$$

True

(b) 7.5 l: 15 l = 5 kg: 10 kg

$$\frac{7.5}{15} = \frac{1}{2}, \quad \frac{5}{10} = \frac{1}{2}$$

True

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

$$\frac{99}{45} = \frac{11}{5}, \quad \frac{44}{20} = \frac{11}{5}$$

True

(d) 32 m: 64 m = 6 sec: 12 sec

$$\frac{32}{64} = \frac{1}{2}, \quad \frac{6}{12} = \frac{1}{2}$$

True

(e) 45 km: 60 km = 12 hrs: 15 hrs

$$\frac{45}{60} = \frac{3}{4}, \quad \frac{12}{15} = \frac{4}{5}$$

False

**Question 4:**

Determine if the following ratios form a proportion. Also, write the middle terms and extreme terms where the ratios form a proportion.

(a) 25 cm: 1 m and Rs 40 : Rs 160

(b) 39 litres: 65 litres and 6 bottles: 10 bottles

(c) 2 kg: 80 kg and 25 g: 625 g

(d) 200 mL: 2.5 litre and Rs 4: Rs 50

Answer:

(a) 25cm: 1 m and Rs 40: Rs 160

$$25 \text{ cm} = \frac{25}{100} \text{ m} = 0.25 \text{ m}$$

$$\frac{0.25}{1} = \frac{1}{4} \text{ and } \frac{40}{160} = \frac{1}{4}$$

Yes. These are in proportion.

Middle terms are 1m, Rs 40.

Extreme terms are 25 cm, Rs 160.

(b) 39 l: 65 l and 6 bottles: 10 bottles

$$\frac{39}{65} = \frac{3}{5} \text{ and } \frac{6}{10} = \frac{3}{5}$$

Yes. These are in proportion.

Middle terms are 65 l, 6 bottles.

Extreme terms are 39 l, 10 bottles.

(c) 2 kg: 80 kg and 25g: 625 g

$$\frac{2}{80} = \frac{1}{40} \text{ and } \frac{25}{625} = \frac{1}{25}$$

No. These are not in proportion.

(d) 200 mL: 2.5 l and Rs 4: Rs 50

$$1 \text{ l} = 1000 \text{ mL}$$

$$2.5 \text{ l} = 2500 \text{ mL}$$

$$\frac{200}{2500} = \frac{2}{25} \text{ and } \frac{4}{50} = \frac{2}{25}$$

Yes. These are in proportion.

Middle terms are 2.5 l, Rs 4.

Extreme terms are 200 mL, Rs 50.

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