

# Ratio

## EXERCISE 11(A)

### Question 1.

Express each of the following ratios in its simplest form :

- (a) (i) 4 : 6  
(ii) 48 : 54  
(iii) 200 : 250  
(b) (i) 5 kg : 800 gm  
(ii) 30 cm : 2 m  
(iii) 3 m : 90 cm  
(iv) 2 years : 9 months  
(v) 1 hour : 45 minutes  
(vi) 4 min : 45 sec

(c) (i)  $1\frac{1}{2} : 2\frac{1}{2}$  (ii)  $3\frac{1}{2} : 7$

(i)  $4 : 6 = \frac{4}{6} = \frac{2}{3} = 2 : 3$

(ii)  $48 : 54 = \frac{48}{54} = \frac{8}{9} = 8 : 9$

(iii)  $200 : 250 = \frac{200}{250} = \frac{4}{5} = 4 : 5$

(b) (i) 5 kg : 800 gm = 5000 : 800

( $\because 5 \times 1000 \text{ gm} = 5000 \text{ gm}$ )

$$= \frac{5000}{800} = \frac{50}{8} = \frac{25}{4} = 25 : 4$$

(ii) 30 cm : 2 m = 30 cm : 200 cm

( $\because 2 \times 100 \text{ cm} = 200 \text{ cm}$ )

$$\frac{30}{200} = \frac{3}{20} = 3 : 20$$

(iii) 3 m : 90 cm = 300 cm : 90 cm

( $3 \times 100 \text{ cm} = 300 \text{ cm}$ )

$$= \frac{300}{90} = \frac{10}{3} = 10 : 3$$

(iv) 2 years : 9 months = 24 months : 9 months

( $\because 2 \text{ years} = 2 \times 12 \text{ month} = 24 \text{ months}$ )

$$= \frac{24}{9} = \frac{8}{3} = 8 : 3$$

**Solution:**

(v) 1 hour : 45 minutes = 60 minutes : 45 minutes  
( $\because$  1 hour = 60 minutes)

$$\frac{60}{45} = \frac{4}{3} = 4 : 3$$

(vi) 4 min : 45 sec = 240 sec : 45 sec  
( $\because$  1 minutes = 60 sec,  $4 \times 60 = 240$  sec)

$$= \frac{240}{45} = \frac{16}{3} = 16 : 3$$

(c) (i)  $1\frac{1}{2} : 2\frac{1}{2} = \frac{3}{2} : \frac{5}{2} = \frac{3}{2} \div \frac{5}{2}$   
 $= \frac{3}{2} \times \frac{2}{5} = \frac{3}{5} = 3 : 5$

(ii)  $3\frac{1}{2} : 7 = \frac{7}{2} : \frac{7}{1} = \frac{7}{2} \div \frac{7}{1}$   
 $= \frac{7}{2} \times \frac{1}{7} = \frac{1}{2} = 1 : 2$

(iii)  $2\frac{1}{3} : 3\frac{1}{2} : 1\frac{1}{4} = \frac{7}{3} : \frac{7}{2} : \frac{5}{4}$   
 $= \frac{7}{3} \times 12 : \frac{7}{2} \times 12 : \frac{5}{4} \times 12$   
(L.C.M. of 2, 3 and 4 = 12)  
 $= 28 : 42 : 15$

(iv)  $x^2 : 4x = \frac{x^2}{4x} = \frac{x \times x}{4 \times x} = \frac{x}{4} = x : 4$

(v)  $2.5 : 1.5 = \frac{25}{15} = \frac{5}{3} = 5 : 3$

OR,  $2.5 : 1.5 = \frac{25}{10} : \frac{15}{10} = \frac{25}{10} \div \frac{15}{10}$   
 $= \frac{25}{10} \times \frac{10}{15} = \frac{25}{15} = \frac{5}{3} = 5 : 3$

(vi)  $2.5 : 5 = \frac{25}{10} : \frac{5}{1} = \frac{25}{10} \div \frac{5}{1} = \frac{25}{10} \times \frac{1}{5}$   
 $= \frac{5}{10} = 1 : 2$

OR,  $2.5 : 5 = 2.5 : 5.0 = \frac{2.5}{5.0} = \frac{25}{50} = \frac{1}{2}$   
 $= 1 : 2$

**Myclass24**  
Your Class. Your Pace.

**Question 2.**

A field is 80 m long and 60 m wide. Find the ratio of its width to its length.

**Solution:**

Width of field = 60 m

Length of field = 80 m

Ratio between width and length =  $\frac{60}{80} = \frac{3}{4} = 3 : 4$

**Question 3.**

State, true or false :

(i) A ratio equivalent to 7 : 9 is 27 : 21.

(ii) A ratio equivalent to 5 : 4 is 240 : 192.

(iii) A ratio of 250 gm and 3 kg is 1 : 12.

**Solution:**

(i) False.

Correct: A ratio equivalent to 7 : 9 is 9 : 7

(ii) True

(iii) True

**Question 4.**

Is the ratio of 15 kg and 35 kg same as the ratio of 6 years and 14 years?

**Solution:**

Ratio of weight 15 kg and 35 kg

$$= \frac{15\text{kg}}{35\text{kg}} = \frac{3}{7} = 3:7$$

Ratio of 6 years and 14 years

$$= \frac{6 \text{ years}}{14 \text{ years}} = \frac{3}{7} = 3:7$$

Yes, the ratio in both cases are same.

**Question 5.**

Is the ratio of 6 g and 15 g same as the ratio of 36 cm and 90 cm ?

**Solution:**

Ratio of 6 g and 15 g

$$= \frac{6}{15} = \frac{2}{5} = 2:5$$

Ratio of 36 cm and 90 cm

$$= \frac{36}{90} = \frac{18}{45} = \frac{6}{15} = 2:5$$

Yes, the ratio in both cases are same.

**Question 6.**

Find the ratio between 3.5 m, 475 cm and 2.8 m.

**Solution:**

The given values = 3.5 m, 475 cm and 2.8 m

=  $3.5 \times 100$  cm : 475 cm :  $2.8 \times 100$  cm

= 350 cm : 475 cm : 280 cm

= 70 cm : 95 cm : 56 cm

The ratio is 70 : 95 : 56

**Question 7.**

Find the ratio between 5 dozen and 2 scores. [1 score = 20]

**Solution:**

Ratio between 5 dozen and 2 scores

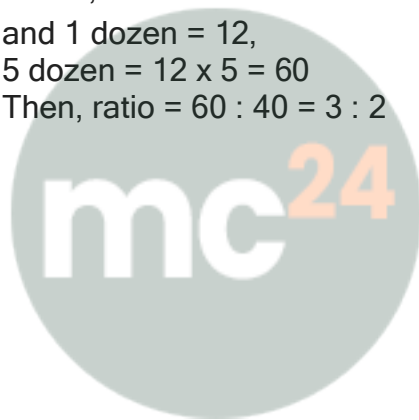
Given = 1 score = 20

then, 2 scores =  $2 \times 20 = 40$

and 1 dozen = 12,

5 dozen =  $12 \times 5 = 60$

Then, ratio =  $60 : 40 = 3 : 2$



**Myclass24**  
Your Class. Your Pace.