

Ratio

Ex-11(A)

1) Express each of the following ratios in its simplest form:

a) i) $9:6 = \frac{9}{6} = \frac{3}{2} = 3:2$

~~ii) 4~~

ii) $48:54 = \frac{48}{54} = \frac{24}{27} = \frac{8}{9} = 8:9$

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

b) i) $5 \text{ kg} : 800 \text{ gm} = \frac{5000 \text{ gm}}{800 \text{ gm}} = \frac{25}{4} = 25:4$

ii) $30 \text{ cm} : 2 \text{ m} = \frac{30 \text{ cm}}{200 \text{ cm}} = 3:20$

iii) $3 \text{ m} : 90 \text{ cm} = \frac{300 \text{ cm}}{90 \text{ cm}} = 30:9 = 10:3$

iv) $2 \text{ years} : 9 \text{ months} = \frac{24}{9} = \frac{8}{3} = 8:3$

v) $1 \text{ hour} : 45 \text{ min} = \frac{60 \text{ min}}{45 \text{ min}} = \frac{12}{9} = 12:9 = \frac{4}{3} = 4:3$

vi) $4 \text{ min} : 45 \text{ sec} = \frac{240 \text{ sec}}{45 \text{ sec}} = \frac{16}{3} = 16:3$

vii) $1\frac{1}{2} : 2\frac{1}{2} = \frac{3}{2} : \frac{5}{2} = \frac{3}{2} \div \frac{5}{2} = \frac{3}{2} \times \frac{2}{5} = 3:5$

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

ix) ~~$2\frac{1}{3} : 3\frac{1}{2} : 1\frac{1}{4} = \frac{7}{3} : \frac{7}{2} : \frac{5}{4} = \frac{7}{3} \div \frac{7}{2} \div \frac{5}{4} = \frac{7}{3} \times \frac{2}{7} \times \frac{4}{5} = \frac{8}{15}$~~

$$i.) \quad 2\frac{1}{3} : 3\frac{1}{2} : 1\frac{1}{4} = \frac{7}{3} : \frac{7}{2} : \frac{5}{4} = \frac{7}{3} \times \frac{2}{2} \times \frac{5}{5} =$$

Since LCM of 3, 2, 4 is 12

$$\therefore \frac{7}{3} : \frac{7}{2} : \frac{5}{4} = \frac{7}{3} \times 12 : \frac{7}{2} \times 12 : \frac{5}{4} \times 12$$

$$= 4 : 6 : 3$$

$$iv) \quad x^2 : 4x$$

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

~~$$v) \quad 2x^2 : 1x = \frac{2x^2}{1x} = \frac{2x}{1} = 2x : 1$$~~

$$vi) \quad 2.5 : 1.5 = \frac{2.5}{1.5} = \frac{25}{15} = 5 : 3$$

$$vii) \quad 2.5 : 5 = \frac{2.5}{5} = \frac{25}{50} = \frac{1}{2} = 1 : 2$$

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

Ans. width of the field = 60 m

length of the field = 80 m

$$\text{ratio} = \frac{60 \text{ m}}{80 \text{ m}} = \frac{6}{8} = \frac{3}{4} = \frac{3}{4} \text{ width to length}$$

So, ratio of the field is 3 : 4

3. State true or false :

i) A ratio equivalent to 7 : 9 is 27 : 21 = False

ii) A ratio equivalent to 5 : 4 is 240 : 192 = True

iii) A ratio of 250 gm and 3kg is 1 : 12 = True

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

ans. Yes, the ratio of 15 kg and 35 kg is 3:7 and the ratio of 6 years and 14 years is $\boxed{3:7}$

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

ans. Yes, the ratio of 6 g and 15 is same as the ratio of 36 cm and 90 cm is $\boxed{2:5}$.

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

ans = $3.5 \text{ m} \times 100 = 350 \text{ cm}$

475 cm

$2.8 \text{ m} = 2.8 \times 100 = 280 \text{ cm}$

= $350 : 475 : 280 \text{ cm}$

= HCF of 350, 475, 280 is 5

= $\frac{350}{5} : \frac{475}{5} : \frac{280}{5}$

$70 : 95 : 56$

ans = $\boxed{70 : 95 : 56}$

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

ans = $5 \text{ dozen} = 5 \times 12 = 60$

[1 dozen = 12]

$2 \text{ score} = 2 \times 20 = 40$

Ratio = $\frac{60}{20} = \frac{6}{4} = \frac{3}{2} = 3:2$

∴ The ratio between 5 dozens and 2 score is 3:2.