

Ex 11.1

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

i) $4:6$

$$\text{Ans} \rightarrow 4:6 = \frac{4 \times 2}{6 \times 3} = \frac{2}{3} \\ = 2:3$$

ii) $48:54$

$$\text{Ans} \rightarrow 48:54 = \frac{48}{54}$$

$$\frac{48}{54} = \frac{24}{27}$$

$$= \frac{24}{27} = \frac{8}{9}$$

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

iii) $200:250$

Ans
8.08.21
Wednesday

pg 1100

$$\text{Ans} \rightarrow 200 : 250 = \frac{200}{250}$$

$$= \frac{200}{250} = \frac{100}{125}$$

$$= \frac{100}{125} = \frac{20}{25}$$

$$= \frac{20}{25} = \frac{4}{5}$$

$$= 4:5$$

$$\text{b) i) } 5 \text{ kg} : 800 \text{ g}$$

$$\text{Ans} \rightarrow 5 \text{ kg} : 800 \text{ g} = \frac{5000 \text{ g}}{800 \text{ g}}$$

$$= \frac{5000 \text{ g}}{800 \text{ g}} = \frac{2500 \text{ g}}{400 \text{ g}}$$

$$= \frac{2500 \text{ g}}{400 \text{ g}} = \frac{1250 \text{ g}}{200 \text{ g}}$$

$$= \frac{1250 \text{ g}}{200 \text{ g}} = \frac{625 \text{ g}}{100 \text{ g}}$$

$$= \frac{625}{100} = \frac{125}{20} \text{ g}$$

$$= \frac{125}{20} \text{ g} = \frac{25}{4}$$

$$= 25:4$$

$$\text{ii) } 30 \text{ cm} : 2 \text{ m}$$

$$\text{Ans} \rightarrow 30 \text{ cm} : 2 \text{ m} = \frac{30 \text{ cm}}{200 \text{ cm}}$$

$$= \frac{30 \text{ cm}}{200 \text{ cm}} = \frac{15 \text{ cm}}{100 \text{ cm}}$$

$$= \frac{15 \text{ cm}}{100 \text{ cm}} = \frac{3}{20} = 3:20 \text{ cm}$$

08.21
Wednesday

pg - 101

iii) 3m : 90 cm

$$\begin{aligned} \text{Ans} \rightarrow 3m : 90 \text{ cm} &= \frac{300 \text{ cm}}{90} \\ &= \frac{300 \text{ cm}}{90} = \frac{150 \text{ cm}}{45} \\ &= \frac{150 \text{ cm}}{45} = \frac{30 \text{ cm}}{9} \\ &= \frac{30 \text{ cm}}{9} = \frac{10}{3} \\ &= 10 : 3 \text{ cm} \end{aligned}$$

iv) 2 years : 9 months

$$\begin{aligned} \text{Ans} \rightarrow 2 \text{ years} : 9 \text{ months} &= \frac{24 \text{ months}}{9} \\ &= \frac{24 \text{ months}}{9} = \frac{8 \text{ months}}{3} \\ &= 8 : 3 \text{ months} \end{aligned}$$

v) 1 hour : 45 min

$$\begin{aligned} \text{Ans} \rightarrow 1 \text{ hour} : 45 \text{ min} &= \frac{60 \text{ min}}{45} \\ &= \frac{60 \text{ min}}{45} = \frac{20 \text{ min}}{15} \\ &= \frac{20 \text{ min}}{15} = \frac{4 \text{ min}}{3} \\ &= 4 \text{ min} : 3 \text{ min} \end{aligned}$$

vi) 4 min : 45 sec

$$\text{Ans} \rightarrow 4 \text{ min} : 45 \text{ sec} = \frac{240 \text{ sec}}{45}$$

Hw
8.08.21
wednesday

pg 102

$$= \frac{240}{45} \text{ sec} = \frac{80}{15} \text{ sec}$$

$$= \frac{80}{15} \text{ sec} = \frac{16}{3} \text{ sec}$$

$$= \frac{16}{3} \text{ sec} = 16 \div 3 \text{ sec}$$

c) i) $1\frac{1}{2} : 2\frac{1}{2}$

Ans $\rightarrow 1\frac{1}{2} : 2\frac{1}{2} = \frac{3}{2} : \frac{5}{2}$

$$= \frac{3}{2} \div \frac{5}{2} = \frac{3}{2} \times \frac{2}{5}$$

$$= \frac{3}{5} = 3:5$$

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

Ans $\rightarrow \frac{7}{2} : 7 = \frac{7}{2} : \frac{7}{1}$

$$= \frac{7}{2} : \frac{7}{1} = \frac{7}{2} \div \frac{7}{1}$$

$$= \frac{7}{2} \times \frac{1}{7} = \frac{1}{2}$$

$$= 1:2$$

iii) $2\frac{1}{3} : 3\frac{1}{2} : 1\frac{1}{4}$

Ans $\rightarrow \frac{7}{3} : \frac{7}{2} : \frac{5}{4}$

$$\text{LCM} = 12$$

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

$$= 28 : 42 : 15$$

08.29
Wednesday

Page 103

ii) $x^2 : 4x$

Ans $\rightarrow x^2 : 4x = \frac{x^2}{4x}$

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

$= \frac{x}{4} = x : 4$

iii) $2.5 : 1.5$

Ans $\rightarrow 2.5 : 1.5 = \frac{2.5}{1.5}$

$= \frac{2.5}{1.5} = \frac{25}{15}$

$= \frac{25}{15} = \frac{5}{3}$

$= \frac{5}{3} = 5 : 3$

iv) $2.5 : 5$

Ans $\rightarrow 2.5 : 5 = \frac{2.5}{5}$

$= \frac{2.5}{5} = \frac{25}{50}$

$= \frac{25}{50} = \frac{1}{2}$

$\frac{1}{2} = 1 : 2$

$= \frac{1}{2} = 1 : 2$

2) A field is 80m long and 60m wide.

HW
8.08.22
wednesday

Pg 104

Find the ratio of its width to its length.

Ans → The ratio of its width to its length

$$= 80 : 60 \text{ m} = \frac{80}{60} \text{ m}$$

$$= \frac{80}{60} \text{ m} = \frac{40}{30} \text{ m}$$

$$= \frac{40}{30} \text{ m} = \frac{20}{15} \text{ m}$$

$$= \frac{20}{15} \text{ m} = \frac{4}{3} \text{ m}$$

$$= \frac{4}{3} \text{ m} = 4 : 3 \text{ m}$$

∴ Therefore, the ratio of its width to its length is 3 : 4 m.

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 3 kg is 1 : 12.

True

HW
8.08.22
wednesday

Pg 105

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

Ans → The ratio of 15 kg and 35 kg = 15 kg : 35 kg

The ratio of 6 years and 14 years = 6 : 14 years

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

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

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

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

∴ Yes, the ratio of 15 kg and 35 kg and 6 years and 14 years is as the same.

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

Ans → The ratio of 6 g and 15 g = 6 g : 15 g

The ratio of 36 cm and 90 cm = 36 : 90 cm

$$= \frac{6}{15} \text{ g} = \frac{2}{5} \text{ g}$$

$$= \frac{2}{5} \text{ g} = 2 : 5 \text{ g}$$

$$= \frac{36}{90} \text{ cm} = \frac{36}{90} \text{ cm}$$

Ans
8.00.24
Wednesday

$$= \frac{36}{90} \text{ cm} = \frac{12}{30} \text{ cm}$$

$$= \frac{12}{30} \text{ cm} = \frac{4}{10} \text{ cm}$$

$$= \frac{4}{10} \text{ cm} = \frac{2}{5} \text{ cm}$$

$$= \frac{2}{5} \text{ cm} = 2.5 \text{ cm}$$

yes, the ratio of 6g and 15g and

36.90 cm is the same.

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

Ans \rightarrow 3.5 m, 475 cm and 2.8 m

$$= 350 \text{ cm, } 475 \text{ cm and } 280 \text{ cm.}$$

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

$$= \frac{350}{475} \text{ cm} = \frac{70}{95} \text{ cm}$$

$$= \frac{280}{95} \text{ cm} = 70 : 95 : 56 \text{ cm.}$$

7) Find the ratio between 5 dozen and
2 scores.

$$\text{Ans} \rightarrow 1 \text{ dozen} = 12$$

Ans
8.00.24
Wednesday

$$5 \text{ dozen} = 60$$

$$1 \text{ score} = 20$$

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

$$= \frac{60}{40} = \frac{60}{40}$$

$$= \frac{60}{40} = \frac{30}{20}$$

$$= \frac{30}{20} = \frac{15}{10}$$

$$= \frac{15}{10} = 3$$

$$= \frac{3}{2} = 3:2$$

therefore, the ratio between 5 dozen:

2 score is 3:2.