

CBSE NCERT Solutions for Class 6 Mathematics Chapter 12**Back of Chapter Questions****Exercise 12.1**

1. There are 20 girls and 15 boys in a class.

- (A) What is the ratio of number of girls to the number of boys?
(B) What is the ratio of number of girls to the total number of students in the class?

Solution:

Given, Total number of girls = 20

Total number of boys = 15

Total number of students = Total number of girls + Total number of boys
= 20 + 15 = 35

(A) The ratio of girls to that of boys = $\frac{\text{Total number of girls}}{\text{Total number of boys}}$
= $\frac{20}{15}$
= $\frac{4}{3}$

Hence, the required ratio is 4:3

(B) The ratio of girls to total students = $\frac{\text{Total number of girls}}{\text{Total number of students}}$
= $\frac{20}{20+15}$
= $\frac{20}{35}$
= $\frac{4}{7}$

Therefore, the required ratio is 4:7

2. Out of 30 students in a class, 6 like football, 12 like cricket and remaining like tennis. Find the ratio of

- (A) Number of students liking football to number of students liking tennis.
(B) Number of students liking cricket to total number of students.

Solution:

Given, Total number of students = 30

Total number of students like football = 6

Total number of students like cricket = 12

Number of students like tennis = Total number of students – Number of students like football – Number of students like cricket.

Number of students like tennis = $30 - 6 - 12 = 12$

(A) The ratio of students like football that of tennis

$$\begin{aligned}
 &= \frac{\text{Number of students like football}}{\text{Number of students like tennis}} \\
 &= \frac{6}{12} \\
 &= \frac{1}{2} = 1:2
 \end{aligned}$$

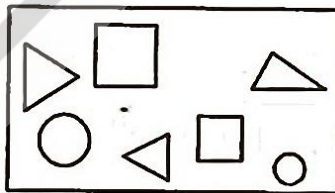
Therefore, the required ratio is 1:2

(B) The ratio of students like cricket to that of total students

$$\begin{aligned}
 &= \frac{\text{Number of students like cricket}}{\text{Total number of students}} \\
 &= \frac{12}{30} \\
 &= \frac{2}{5} = 2:5
 \end{aligned}$$

Hence, the required ratio is 2:5

3. See the figure and find the ratio of



(A) Number of triangles to the number of circles inside the rectangle.

(B) Number of squares to all the figures inside the rectangle.

(C) Number of circles to all the figures inside the rectangle.

Solution:

From the given figure,

Total number of triangles = 3

Total number of squares = 2

Total number of circles = 2

Total number of figures = 7

$$\begin{aligned} \text{(A) Ratio of number of triangles to that of circles} &= \frac{\text{Total number of triangles}}{\text{Total number of circles}} \\ &= \frac{3}{2} = 3:2 \end{aligned}$$

Hence, the required ratio is 3:2

$$\begin{aligned} \text{(B) Ratio of number of squares to all figures} &= \frac{\text{Total number of squares}}{\text{Total number of figures}} \\ &= \frac{2}{7} = 2:7 \end{aligned}$$

Hence, the required ratio is = 2:7

$$\begin{aligned} \text{(C) Ratio of number of circles to all figures} &= \frac{\text{Total number of circles}}{\text{Total number of figures}} \\ &= \frac{2}{7} = 2:7 \end{aligned}$$

Therefore, the required ratio is 2:7

4. Distances travelled by Hamid and Akhtar in an hour are 9 km and 12 km. Find the ratio of speed of Hamid to the speed of Akhtar.

Solution:

We know that,

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Speed of Hamid} = \frac{9 \text{ km}}{1 \text{ h}}$$

$$= 9 \text{ km/h}$$

$$\text{Speed of Akhtar} = \frac{12 \text{ km}}{1 \text{ h}}$$

$$= 12 \text{ km/h}$$

$$\text{Ratio of speed of Hamid to that of speed of Akhtar} = \frac{\text{Speed of hamid}}{\text{Speed of akhtar}}$$

$$= \frac{9}{12}$$

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

Therefore, the required ratio is 3:4

5. Fill in the following blanks:

$$\frac{15}{18} = \frac{\square}{6} = \frac{10}{\square} = \frac{\square}{30}$$

[Are these equivalent ratios?]

Solution:

$$\frac{15}{18} = \frac{5 \times 3}{6 \times 3}$$

$$= \frac{5}{6}$$

$$\therefore \frac{5}{6} = \frac{5 \times 2}{6 \times 2}$$

$$= \frac{10}{12}$$

$$\therefore \frac{5}{6} = \frac{5 \times 5}{6 \times 5}$$

$$= \frac{25}{30}$$

$$\frac{15}{18} = \frac{5}{6} = \frac{10}{12} = \frac{25}{30}$$

Since, all the ratios are same.

Yes, these are equivalent ratios.

6. Find the ratio of the following:

(A) 81 to 108

(B) 98 to 63

(C) 33 km to 121 km

(D) 30 minutes to 45 minutes

Solution:

(A) Ratio of 81 to 108 = $\frac{81}{108}$

$$= \frac{3}{4}$$

$$= 3:4$$

Therefore, the required ratio is 3:4

(B) Ratio of 98 to 63 = $\frac{98}{63}$

$$= \frac{14}{9}$$

$$= 14:9$$

Hence, the required ratio is 14:9

(C) Ratio of 33 km to 121 km = $\frac{33}{121}$

$$= \frac{3}{11}$$

$$= 3:11$$

Thus, the required ratio is 3:11

(D) Ratio of 30 minutes to 45 minutes = $\frac{30}{45}$

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

$$= 2:3$$

Hence, the required ratio is 2:3

7. Find the ratio of the following:

(A) 30 minutes to 1.5 hours

(B) 40 cm to 1.5 m

(C) 55 paise to ₹ 1

(D) 500 mL to 2 litres

Solution:

(A) \because 1 hour = 60 minutes

$$1.5 \text{ hours} = 1.5 \times 60 = 90 \text{ minutes}$$

$$\text{Ratio of 30 minutes to 1.5 hour} = \frac{30}{90}$$

$$= \frac{1}{3}$$

$$= 1:3$$

Hence, the required ratio is 1:3

(B) We know that 1 m = 100 cm

$$1.5 \text{ m} = 1.5 \times 100 \text{ cm} = 150 \text{ cm}$$

$$\text{Ratio of 40 cm to 1.5 m} = \frac{40}{150}$$

$$= \frac{4}{15}$$

$$= 4:15$$

Therefore, the required ratio is 4:15

- (C) We know that ₹ 1 = 100 paise

$$\text{Ratio of 55 paise to ₹ 1} = \frac{55}{100}$$

$$= \frac{11}{20}$$

$$= 11:20$$

Thus, the required ratio is 11:20

- (D) We know that 1 litre = 1000 ml.

$$2 \text{ litres} = 2 \times 1000 \text{ ml} = 2000 \text{ ml}$$

$$500 \text{ ml} : 2000 \text{ ml} = \frac{500}{2000}$$

$$= \frac{1}{4}$$

$$= 1:4$$

Hence, the required ratio is 1:4

8. In a year, Seema earns ₹ 1,50,000 and saves ₹ 50,000. Find the ratio of

(A) Money that Seema earns to the money she saves.

(B) Money that she saves to the money she spends.

Solution:

$$\text{Given, Total earning} = ₹ 1,50,000$$

$$\text{Money saved} = ₹ 50,000.$$

$$\therefore \text{Money spent} = ₹ 1,50,000 - ₹ 50,000$$

$$= ₹ 1,00,000$$

(A) Ratio of money earned to money saved = $\frac{\text{Total earned}}{\text{Money saved}}$

$$= \frac{150000}{50000}$$

$$= \frac{3}{1}$$

$$= 3:1$$

Therefore, the required ratio is 3:1

$$(B) \quad \text{Ratio of money saved to money spend} = \frac{\text{Money saved}}{\text{Money spent}}$$

$$= \frac{50000}{100000}$$

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

$$= 1:2$$

Hence, the required ratio is 1:2

9. There are 102 teachers in a school of 3300 students. Find the ratio of the number of teachers to the number of students.

Solution:

Given, Total number of students = 3300

Total number of teachers = 102

$$\text{Ratio of number of teachers to that of students} = \frac{\text{Number of teachers}}{\text{Number of students}}$$

$$= \frac{102}{3300}$$

$$= \frac{17}{550}$$

$$= 17:550$$

Hence, the required ratio is 17:550

10. In a college, out of 4320 students, 2300 are girls. Find the ratio of

- (A) Number of girls to the total number of students.
- (B) Number of boys to the number of girls.
- (C) Number of boys to the total number of students.

Solution:

Given, Total number of students in school = 4320

Number of girls = 2300

Therefore, number for boys = 4320 – 2300

$$= 2020$$

$$(A) \quad \text{Ratio of girls to total number of students} = \frac{\text{Total number of girls}}{\text{Total number of students}}$$

$$= \frac{2300}{4320}$$

$$= \frac{115}{216}$$

$$= 115:216$$

Therefore, the required ratio is 115:216

(B) Ratio of boys to that of girls = $\frac{\text{Total number of boys}}{\text{Total number of girls}}$

$$= \frac{2020}{2300}$$

$$= \frac{101}{115}$$

$$= 101:115$$

Therefore, the required ratio is 101:115

(C) Ratio of boys to total number of students = $\frac{\text{Total number of boys}}{\text{Total number of students}}$

$$= \frac{2020}{4320}$$

$$= \frac{101}{216}$$

$$= 101:216$$

Hence, the required ratio is 101:216

- 11.** Out of 1800 students in a school, 750 opted basketball, 800 opted cricket and remaining opted table tennis. If a student can opt only one game, find the ratio of:

- (A) Number of students who opted basketball to the number of students who opted table tennis.
 (B) Number of students who opted cricket to the number of students opting basketball.
 (C) Number of students who opted basketball to the total number of students.

Solution:

Given, Total number of students = 1800

Number of students opted basketball = 750

Number of students opted cricket = 800

Therefore, number of students opted table tennis = $1800 - (750 + 800) = 250$

- (A) Ratio of students opted basketball to that of opted table tennis

$$\begin{aligned} &= \frac{\text{Number of students opted basketball}}{\text{Number of students opted table tennis}} \\ &= \frac{750}{250} \\ &= \frac{3}{1} \\ &= 3:1 \end{aligned}$$

Hence, the required ratio is 3:1

- (B) Ratio of students opted cricket to students opted basketball

$$\begin{aligned} &= \frac{\text{Number of students opted cricket}}{\text{Number of students opted basketball}} \\ &= \frac{800}{750} \\ &= \frac{16}{15} \\ &= 16:15 \end{aligned}$$

Therefore, the required ratio is 16:15

- (C) Ratio of students opted basketball to total no. of students

$$\begin{aligned} &= \frac{\text{Number of students opted basketball}}{\text{Total number of students}} \\ &= \frac{750}{1800} \\ &= \frac{5}{12} \\ &= 5:12 \end{aligned}$$

Thus, the required ratio is 5:12

12. Cost of a dozen pens is ₹ 180 and cost of 8 ball pens is ₹ 56. Find the ratio of the cost of a pen to the cost of a ball pen.

Solution:

Given cost of a dozen pens (12 pens) = ₹ 180

$$\therefore \text{Cost of 1 pen} = \frac{180}{12} = ₹ 15$$

Given cost of 8 ball pens = ₹ 56

$$\therefore \text{Cost of 1 ball pen} = \frac{56}{8} = ₹ 7$$

$$\text{Ratio of cost of one pen to that of one ball pen} = \frac{\text{Cost of a pen}}{\text{Cost of a ball pen}}$$

$$= \frac{15}{7}$$

$$= 15:7$$

Hence, the required ratio is 15:7

13. Consider the statement: Ratio of breadth and length of a hall is 2:5. Complete the following table that shows some possible breadths and lengths of the hall.

Breadth of hall (in meters)	10	<input type="text"/>	40
Length of the hall (in meters)	25	50	<input type="text"/>

Solution:

Given,

$$\text{Ratio of breadth to length} = 2:5 = \frac{2}{5}$$

$$\therefore \text{Other equivalent ratios are} = \frac{2}{5} \times \frac{10}{10} = \frac{20}{50}$$

$$\frac{2}{5} \times \frac{20}{20} = \frac{40}{100}$$

Hence,

Breadth of hall (in meters)	10	20	40
Length of the hall (in meters)	25	50	100

14. Divide 20 pens between Sheela and Sangeeta in the ratio of 3:2.

Solution:

Given,

$$\text{Ratio between Sheela and Sangeeta} = 3:2$$

$$\text{Total number of pens} = 20$$

$$\text{Total parts} = 3 + 2 = 5$$

$$\text{Therefore, the number of pens sheela should get} = \frac{3}{5} \text{ of the total pens}$$

$$\text{and the number of pens sangeeta should get} = \frac{2}{5} \text{ of total pens}$$

$$\text{Therefore, Number of pens sheela gets} = \frac{3}{5} \times 20 = 12 \text{ pens}$$

Number of pens sangeeta gets = $\frac{2}{5} \times 20 = 8$ pens

Hence, Sheela and sangeeta gets 12 and 8 pens respectively.

15. Mother wants to divide ₹ 36 between her daughters Shreya and Bhoomika in the ratio of their ages. If age of Shreya is 15 years and age of Bhoomika is 12 years, find how much Shreya and Bhoomika will get.

Solution: Given,

Age of shreya = 15 years

Age of Bhoomika = 12 years

Ratio of the age of Shreya to that of Bhoomika = $\frac{\text{Age of Shreya}}{\text{Age of bhoomika}}$

$$= \frac{15}{12}$$

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

5:4

Hence, the required ratio is 5:4

Thus, ₹ 36 to be divided between Shreya and Bhoomika in the ratio of 5:4.

∴ Total parts = 5 + 4 = 9

Shreya gets = $\frac{5}{9}$ of ₹ 36 = $\frac{5}{9} \times 36 = ₹ 20$

Bhoomika gets = $\frac{4}{9}$ of ₹ 36 = $\frac{4}{9} \times 36 = ₹ 16$

Therefore, Shreya and Bhoomika gets ₹20 and ₹16 respectively.

16. Present age of father is 42 years and that of his son is 14 years. Find the ratio of

- (A) Present age of father to the present age of son.
- (B) Age of the father to the age of son, when son was 12 years old.
- (C) Age of father after 10 years to the age of son after 10 years.
- (D) Age of father to the age of son when father was 30 years old.

Solution:

Given,

Age of father = 42 years.

Age of son = 14 years.

- (A) Ratio of father's present age to that of son = $\frac{\text{Age of father}}{\text{Age of son}}$

$$\begin{aligned} &= \frac{42}{14} \\ &= \frac{3}{1} \\ &= 3:1 \end{aligned}$$

Hence, the required ratio is 3:1

- (B) When son was 12 years, *i. e.*, 2 years ago,
then father age was $(42 - 2) = 40$ years

$$\begin{aligned} \text{Therefore, the ratio of their ages} &= \frac{\text{Age of father two years ago}}{\text{Age of son two years ago}} \\ &= \frac{40}{12} \\ &= \frac{10}{3} \\ &= 10:3 \end{aligned}$$

Hence, the required ratio is 10:3

- (C) Age of father after 10 years $= 42 + 10 = 52$ years
Age of son after 10 years $= 14 + 10 = 24$ years

$$\begin{aligned} \text{Therefore, ratio of their ages} &= \frac{\text{Age of father after ten years}}{\text{Age of son after ten years}} \\ &= \frac{52}{24} \\ &= \frac{13}{6} \\ &= 13:6 \end{aligned}$$

Hence, the required ratio is 13:6

- (D) When father was 30 years old,
i. e., 12 years ago, then son age was $= (14 - 12) = 2$ years.

$$\begin{aligned} \text{Therefore, the ratio of their ages} &= \frac{\text{Age of father twelve years ago}}{\text{Age of son twelve years ago}} \\ &= \frac{30}{2} \\ &= \frac{15}{1} \\ &= 15:1 \end{aligned}$$

Hence, the required ratio is 15:1

EXERCISE 12.2

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

Solution:

(A) $15:45 = \frac{15}{45}$

$$= \frac{1}{3}$$

$$= 1:3$$

$$40:120 = \frac{40}{120}$$

$$= \frac{1}{3}$$

$$= 1:3$$

Since $15:45 = 40:120$

Therefore, 15, 45, 40, 120 are in proportion

(B) $33:121 = \frac{33}{121}$

$$= \frac{3}{11}$$

$$= 3:11$$

$$9:96 = \frac{9}{96}$$

$$= \frac{3}{32}$$

$$= 3:32$$

Since $33:121 \neq 9:96$

Therefore, 33, 121, 9, 96 are not in proportion.

$$(C) \quad 24:28 = \frac{24}{28}$$

$$= \frac{6}{7}$$

$$= 6:7$$

$$36:48 = \frac{36}{48}$$

$$= \frac{3}{4}$$

$$= 3:4$$

Since $24:28 \neq 36:48$

Therefore, 24, 28, 36, 48 are not in proportion.

$$(D) \quad 32:48 = \frac{32}{48}$$

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

$$= 2:3$$

$$70:210 = \frac{70}{210}$$

$$= \frac{1}{3}$$

$$= 1:3$$

Since $32:48 \neq 70:210$

Therefore, 32, 48, 70, 210 are not in proportion.

$$(E) \quad 4:6 = \frac{4}{6}$$

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

$$= 2:3$$

$$8:12 = \frac{8}{12}$$

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

$$= 2:3$$

Since $4:6 = 8:12$

Therefore, 4, 6, 8, 12 are in proportion.

$$(F) \quad 33:44 = \frac{33}{44}$$

$$= \frac{3}{4}$$

$$= 3:4$$

$$75:100 = \frac{75}{100}$$

$$= \frac{3}{4}$$

$$= 3:4$$

$$\text{Since } 33:44 = 75:100$$

Therefore, 33, 44, 75, 100 are in proportion.

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) $0.9 : 0.36 :: 10:4$

Solution:

(A) $16 : 24 :: 20 : 30$

$$\frac{16}{24} = \frac{8 \times 2}{8 \times 3} = \frac{2}{3}$$

$$\frac{20}{30} = \frac{10 \times 2}{10 \times 3} = \frac{2}{3}$$

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

Hence it is True.

(B) $21:6 :: 35 : 10$

$$\frac{21}{6} = \frac{7 \times 3}{2 \times 3} = \frac{7}{2}$$

$$\frac{35}{10} = \frac{7 \times 5}{2 \times 5} = \frac{7}{2}$$

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

Hence, it is True.

(C) $12 : 18 :: 28 : 12$

$$\frac{12}{18} = \frac{6 \times 2}{6 \times 3} = \frac{2}{3}$$

$$\frac{28}{12} = \frac{7 \times 4}{3 \times 4} = \frac{7}{3}$$

$$\frac{12}{18} \neq \frac{28}{12}$$

Hence, it is False.

(D) $8 : 9 :: 24 : 27$

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

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

Hence, it is True

(E) $5.2 : 3.9 :: 3 : 4$

$$\frac{5.2}{3.9} = \frac{1.3 \times 4}{1.3 \times 3} = \frac{4}{3}$$

$$\frac{5.2}{3.9} \neq \frac{3}{4}$$

Hence, it is False.

(F) $0.9 : 0.36 :: 10 : 4$

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

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

Hence, it is True.

3. Are the following statements true?

(A) $40 \text{ persons} : 200 \text{ persons} = ₹ 15 : ₹ 75$

(B) $7.5 \text{ litres} : 15 \text{ litres} = 5 \text{ kg} : 10 \text{ kg}$

(C) $99 \text{ kg} : 45 \text{ kg} = ₹ 44 : ₹ 20$

(D) $32 \text{ m} : 64 \text{ m} = 6 \text{ sec} : 12 \text{ sec}$

(E) $45 \text{ km} : 60 \text{ km} = 12 \text{ hours} : 15 \text{ hours}$

Solution:

(A) $40 \text{ persons} : 200 \text{ persons} = \frac{40}{200}$

$$= \frac{1}{5}$$

$$= 1 : 5$$

$$\text{₹ } 15 : \text{₹ } 75 = \frac{15}{75}$$

$$= \frac{1}{5}$$

$$= 1 : 5$$

Since, $40 \text{ persons} : 200 \text{ persons} = \text{₹ } 15 : \text{₹ } 75$

Hence, the statement is true.

(B) $7.5 \text{ litres} : 15 \text{ litres} = \frac{7.5}{15}$

$$= \frac{75}{150}$$

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

$$= 1 : 2$$

$$5 \text{ kg} : 10 \text{ kg} = \frac{5}{10}$$

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

$$= 1 : 2$$

Since, $7.5 \text{ litres} : 15 \text{ litres} = 5 \text{ kg} : 10 \text{ kg}$

Hence, the statement is true.

(C) $99 \text{ kg} : 45 \text{ kg} = \frac{99}{45}$

$$= \frac{11}{5}$$

$$= 11 : 5$$

$$\text{₹ } 44 : \text{₹ } 20 = \frac{44}{20}$$

$$= \frac{11}{5}$$

$$= 11:5$$

Since, 99 kg: 45 kg = ₹44: ₹20

Hence, the statement is true.

(D) $32 \text{ m}: 64 \text{ m} = \frac{32}{64}$

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

$$= 1:2$$

$$6 \text{ sec}: 12 \text{ sec} = \frac{6}{12}$$

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

$$= 1:2$$

Since, 32 m: 64 m = 6 sec: 12 sec

Hence, the statement is true.

(E) $45 \text{ km}: 60 \text{ km} = \frac{45}{60}$

$$= \frac{3}{4}$$

$$= 3:4$$

$$12 \text{ hours}: 15 \text{ hours} = \frac{12}{15}$$

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

$$= 4:5$$

Since, 45 km : 60 km \neq 12 hours: 15 hours

Hence, the statement is not true.

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 ₹40: ₹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 ₹4: ₹50

Solution:

(A) We know that 1 m = 100 cm

$$25 \text{ cm}: 1\text{m} = 25 \text{ cm}: (1 \times 100)\text{cm}$$

$$= 25 \text{ cm}: 100 \text{ cm}$$

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

$$= \frac{1}{4}$$

$$= 1:4$$

$$₹40: ₹160 = \frac{40}{160}$$

$$= \frac{1}{4}$$

$$= 1:4$$

Since the ratios are equal, these are in proportion.

Middle terms = 1, 40 and Extreme terms = 25, 160

(B) 39 litres: 65 litres = $\frac{39}{65}$

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

$$6 \text{ bottles}: 10 \text{ bottles} = \frac{6}{10}$$

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

Since the ratios are equal.

Therefore, these are in proportion.

Middle terms = 65, 6 and Extreme terms = 39, 10

(C) 2 kg: 80 kg = $\frac{2}{80}$

$$= \frac{1}{40} = 1:40$$

$$25 \text{ g}: 625 \text{ g} = \frac{25}{625}$$

$$= \frac{1}{25} = 1:25$$

Since the ratios are not equal, therefore these are not in proportion.

(D) We know that 1 litre = 1000 ml.

$$200 \text{ ml} : 2.5 \text{ litres} = 200 \text{ ml} : (2500) \text{ ml}$$

$$= \frac{200}{2500}$$

$$= \frac{2}{25} = 2 : 25$$

$$₹4 : ₹50 = \frac{4}{50}$$

$$= \frac{2}{25} = 2 : 25$$

Since the ratios are equal, therefore these are in proportion.

Middle terms = 2.5, 4 and Extreme terms = 200, 50

EXERCISE 12.3

1. If the cost of 7 m of cloth is ₹1470, find the cost of 5 m of cloth.

Solution:

Given, the cost of 7 m of cloth = ₹1470

$$\therefore \text{Cost of 1 m of cloth} = \frac{1470}{7} = ₹210$$

$$\therefore \text{Cost of 5 m of cloth} = ₹210 \times 5 = ₹1050$$

Hence, the cost of 5 m of cloth is ₹ 1050.

2. Ekta earns ₹3000 in 10 days. How much will she earn in 30 days?

Solution:

Given, Ekta earnings of 10 days = ₹3000

$$\therefore \text{Earning of 1 day} = \frac{3000}{10} = ₹300$$

$$\therefore \text{Earning of 30 days} = ₹300 \times 30 = ₹9,000$$

Therefore, she earns ₹9000 in 30 days.

3. If it has rained 276 mm in the last 3 days, how many cm of rain will fall in one full week (7 days)? Assume that the rain continues to fall at the same rate.

Solution: Given,

Rain in 3 days = 276 mm

$$\therefore \text{Rain in 1 day} = \frac{276}{3} = 92 \text{ mm}$$

$$\therefore \text{Rain in 7 days} = 92 \times 7 = 644 \text{ mm}$$

$$\text{We know that } 1\text{mm} = \frac{1}{10} \text{ cm}$$

$$644\text{mm} = \frac{644}{10} \text{ cm} = 64.4 \text{ cm}$$

Hence, 64.4 cm of rain will fall in one full week.

4. Cost of 5 kg of wheat is ₹91.50

(A) What will be the cost of 8 kg of wheat?

(B) What quantity of wheat can be purchased in ₹183?

Solution:

(A) Given, cost of 5 kg of wheat = ₹ 91.50

$$\therefore \text{Cost of 1 kg of wheat} = \frac{91.50}{5} = ₹18.30$$

$$\therefore \text{Cost of 8 kg of wheat} = ₹18.30 \times 8 = ₹146.40$$

Hence, the cost of 8kg of wheat is ₹146.40

(B) From ₹91.50, quantity of wheat can be purchased = 5 kg

$$\therefore \text{From ₹1, quantity of wheat can be purchased} = \frac{5}{91.50} \text{ kg}$$

$$\therefore \text{For ₹183, quantity of wheat can be purchased} = \frac{5}{91.50} \times 183 = 10 \text{ kg}$$

Therefore, 10 kg of wheat can be purchased in ₹183

5. The temperature dropped 15 degree celsius in the last 30 days. If the rate of temperature drop remains the same, how many degrees will the temperature drop in the next ten days?

Solution:

Given,

Degree of temperature dropped in 30 days = 15 degree Celsius.

$$\therefore \text{Degree of temperature dropped in 1 day} = \frac{15}{30} = \frac{1}{2} \text{ degree Celsius.}$$

$$\therefore \text{Degree of temperature dropped in next 10 days} = \frac{1}{2} \times 10 = 5 \text{ degree Celsius.}$$

Therefore, 5 degree Celsius temperature will drop in next ten days.

6. Shaina pays ₹15000 as rent for 3 months. How much does she has to pay for a whole year, if the rent per month remains same?

Solution:

Given rent paid for 3 months = ₹15000

$$\therefore \text{Rent paid for 1 month} = \frac{15000}{3} = ₹5000$$

$$\therefore \text{Rent to be paid for 12 months} = 5000 \times 12 = ₹60,000$$

Therefore, the total rent she has pay for a whole year is ₹60,000.

7. Cost of 4 dozen bananas is ₹180. How many bananas can be purchased for ₹90?

Solution:

Given, the cost of 4 dozen bananas = ₹180

We know that, 1 dozen bananas = 12 bananas.

Hence, cost of 48 bananas = ₹180

\therefore From ₹180, number of bananas can be purchased 48

$$\therefore \text{From ₹1, number of bananas can be purchased} = \frac{48}{180} = \frac{4}{15}$$

$$\therefore \text{From ₹90, number of bananas can be purchased} = \frac{4}{15} \times 90 = 24$$

Therefore, 24 bananas can be purchased for ₹90.

8. The weight of 72 books is 9 kg. What is the weight of 40 such books?

Solution:

Given weight of 72 books = 9 kg

$$\therefore \text{The weight of 1 book} = \frac{9}{72} = \frac{1}{8}$$

$$\therefore \text{The weight of 40 books} = \frac{1}{8} \times 40 = 5 \text{ kg}$$

Hence, the weight of 40 books is 5 kg.

9. A truck requires 108 litres of diesel for covering a distance of 594 km. How much diesel will be required by the truck to cover a distance of 1650 km?

Solution:

Given,

For covering 594 km, required diesel for a truck = 108 litres

$$\therefore \text{For covering 1 km, required diesel for a truck} = \frac{108}{594} = \frac{2}{11} \text{ litres}$$

$$\therefore \text{For covering 1650 km, required diesel for a truck} = \frac{2}{11} \times 1650 = 300 \text{ litres}$$

Hence, 300 litres of diesel will be required by the truck to cover a distance of 1650 km.

10. Raju purchases 10 pens for ₹150 and Manish buys 7 pens for ₹84. Can you say who got the pens cheaper?

Solution:

Given,

Raju purchase 10 pens for ₹150

$$\therefore \text{Cost of 1 pen purchased by Raju} = \frac{150}{10} = ₹15$$

Manish purchases 7 pens for ₹84

$$\therefore \text{Cost of 1 pen purchased by Manish} = \frac{84}{7} = ₹12$$

Cost of 1 pen purchased by Raju > Cost of 1 pen purchased by Manish.

Hence, Manish got the pens cheaper.

11. Anish made 42 runs in 6 overs and Anup made 63 runs in 7 overs. Who made more runs per over?

Solution:

Given,

Runs made by anish in 6 overs = 42 runs

$$\therefore \text{Runs made by anish in 1 over} = \frac{42}{6} = 7 \text{ runs}$$

Runs made by anup in 7 Overs = 63 runs

$$\therefore \text{Runs made by anup in 1 over} = \frac{63}{7} = 9 \text{ runs}$$

Hence, Anup made more runs per over than Anish.