SNBP International & Sr. Secondary School, Chikhali, Pune.
Affiliation No. 1130703
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Notes-(Term-2)
Sub-math

Prepared by -Pranjali Patil L-12 Ratio and Proportion

Ex 12.1 Class 6 Maths Question 1.
There are 20 girls and 15 boys in a class.
(a) What is the ratio of the number of girls to the number of boys?
(b) What is the ratio of the number of girls to the number of students in the class?
Solution:
(a) Number of girls = 20
Number of boys = 15
Total number of students = 20 + 15 = 35
∴ Ratio of the number of girls to the number of boys

$$= \frac{\text{Number of girls}}{\text{Number of boys}} = \frac{20}{15}$$

$$= \frac{20 \div 5}{15 \div 5} = \frac{4}{3} \text{ or } 4 : 3$$

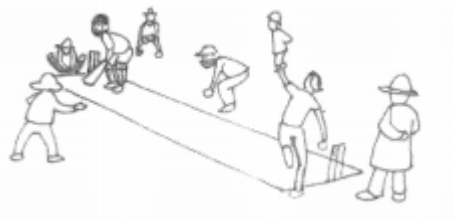
Thus, the required ratio is 4 : 3.
(b) Ratio of the number of girls to the number of students

$$= \frac{\text{Number of girls}}{\text{Number of students}} = \frac{20}{35}$$

$$= \frac{20 \div 5}{35 \div 5} = \frac{4}{7} \text{ or } 4 : 7$$

Thus, the required ratio is 4 : 7.

Ex 12.1 Class 6 Maths Question 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 the number of students liking tennis.
(b) Number of students liking cricket to total number of students.



Solution:
Number of students in the class = 30
Number of students liking football = 6
Number of students liking cricket = 12
Number of students liking tennis = 30 – (6 + 12) = 30 – 18 = 12

(a) Ratio of the number of the students liking football to the number of students liking tennis

$$= \frac{\text{Number of students liking football}}{\text{Number of students liking tennis}}$$

$$= \frac{6}{12} = \frac{6 \div 6}{12 \div 6} = \frac{1}{2} \text{ or } 1 : 2$$

Thus, the required ratio is 1 : 2.

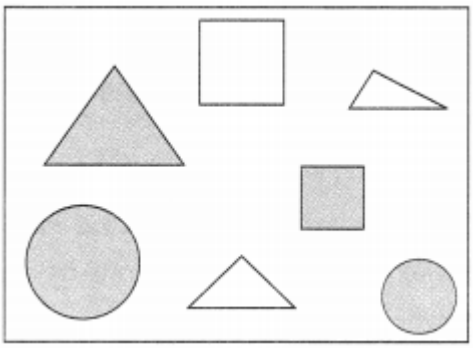
(b) Ratio of the number of students liking cricket to the total number of students

$$= \frac{\text{Number of students liking cricket}}{\text{Total number of students}}$$

$$= \frac{12}{30} = \frac{12 \div 6}{30 \div 6} = \frac{2}{5} \text{ or } 2 : 5$$

Thus, the required ratio is 2 : 5.

Ex 12.1 Class 6 Maths Question 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:
(a) Number of triangles 3
Number of circles = 2
∴ Ratio of number of triangles to the number of circles

$$= \frac{\text{Number of triangles}}{\text{Number of circles}} = \frac{3}{2} \text{ or } 3 : 2$$

Thus, the required ratio is 3 : 2.

(b) Number of squares = 2
Number of all figures = 7
∴ Ratio of number of squares to the number of all the figures

$$= \frac{\text{Number of squares}}{\text{Number of all the figures}} = \frac{2}{7} \text{ or } 2:7$$

Thus, the required ratio is 2 : 7.

(c) Ratio of number of circles to the number of all the figures

$$= \frac{\text{Number of circles}}{\text{Number of all the figures}} = \frac{2}{7} \text{ or } 2:7$$

Thus, the required ratio is 2 : 7.

Ex 12.1 Class 6 Maths Question 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:
Distance travelled by Hamid = 9 km.
Distance travelled by Akhtar = 12 km.
Speed of Hamid = 9 km
per hour Speed of Akhtar = 12 km per hour
∴ Ratio of the speed of Hamid to the speed of Speed of Hamid ar = Speed of Akhtar

$$\text{Akhtar} = \frac{\text{Speed of Hamid}}{\text{Speed of Akhtar}}$$

$$= \frac{9}{12} = \frac{9 \div 3}{12 \div 3} = \frac{3}{4} \text{ or } 3:4$$

Thus, the required ratio is 3 : 4.

Ex 12.1 Class 6 Maths Question 5.
Fill in the following blanks:

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

[Are these equivalent ratios?]
Solution:

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

$$\Rightarrow \square \times 18 = 15 \times 6$$

$\Rightarrow \quad \square = \frac{15 \times 6}{18} = \frac{90}{18} = \frac{90 \div 18}{18 \div 18} = \frac{5}{1} = 5.$

$\therefore \quad \square = 5.$

$\frac{5}{6} = \frac{10}{\square}$

$\Rightarrow \quad 5 \times \square = 6 \times 10$

$\Rightarrow \quad \square = \frac{6 \times 10}{5} = \frac{60}{5} = 12$

$\therefore \quad \square = 12.$

$\frac{10}{12} = \frac{\square}{30}$

$\Rightarrow \quad 12 \times \square = 10 \times 30$

$\Rightarrow \quad \square = \frac{10 \times 30}{12} = \frac{300}{12} = 25$

$\therefore \quad \square = 25$

Now the fractions, we have

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

$\frac{15}{18} = \frac{15 \div 3}{18 \div 3} = \frac{5}{6}$ [HCF of 15 and 18 is 3]

$\frac{10}{12} = \frac{10 \div 2}{12 \div 2} = \frac{5}{6}$ [HCF of 10 and 12 is 2]

$\frac{25}{30} = \frac{25 \div 5}{30 \div 5} = \frac{5}{6}$ [HCF of 25 and 30 is 5]

Thus $\frac{15}{18}$, $\frac{5}{6}$, $\frac{10}{12}$ and $\frac{25}{30}$ are all equivalent ratios.

Ex 12.1 Class 6 Maths Question 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) 81 to 108 $= \frac{81}{108} = \frac{81 \div 27}{108 \div 27} = \frac{3}{4}$

[HCF of 81 and 108 = 27]

Thus, the ratio = 3 : 4

(b) 98 to 63 $= \frac{98}{63} = \frac{98 \div 7}{63 \div 7} = \frac{14}{9}$

[HCF of 98 and 63 = 7]

Thus, the ratio = 14 : 9

(c) 33 km to 121 km $= \frac{33}{121} = \frac{33 \div 11}{121 \div 11} = \frac{3}{11}$

[HCF of 33 and 121 = 11]

Thus, the ratio = 3 : 11

(d) 30 minutes to 45 minutes

$= \frac{30}{45} = \frac{30 \div 15}{45 \div 15} = \frac{2}{3}$ [HCF of 30 and 45 = 15]

Thus, the ratio = 2 : 3

Ex 12.1 Class 6 Maths Question 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) 1 hour = 60 minutes

∴ 1.5 hours = 60 x 1.5 minutes = 90 minutes

∴ Ratio of 30 minutes to 1.5 hours = Ratio of 30 minutes to 90 minutes

$= \frac{30}{90} = \frac{30 \div 30}{90 \div 30} = \frac{1}{3} = 1 : 3$

[HCF of 30 and 90 = 30]

(b) 1 m = 100 cm

∴ 1.5 m = 1.5 x 100 cm = 150 cm.

∴ Ratio of 40 cm to 1.5 m = Ratio of 40 cm to 150 cm.

$\frac{40}{150} = \frac{40 \div 10}{150 \div 10} = \frac{4}{15} = 4 : 15$

[HCF of 40 and 150 = 10]

(c) ₹1 = 100 paise

∴ Ratio of 55 paise to ₹ 1 = Ratio of 55 paise to 100 paise

$= \frac{55}{100} = \frac{55 \div 5}{100 \div 5} = \frac{11}{20} = 11 : 20$

[HCF of 55 and 100 = 5]

(d) 500 mL to 2 litres
1 litre = 1000 mL
∴ 2 litres = 2 x 1000 mL = 2000 mL
∴ Ratio of 500 mL to 2 litres = Ratio of 500 mL to 2000 mL

$$= \frac{500}{2000} = \frac{500 \div 500}{2000 \div 500} = \frac{1}{4} = 1:4$$

[HCF of 500 and 2000 = 500]

Ex 12.1 Class 6 Maths Question 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:
(a) Money earned by Seema = ₹ 1,50,000
Money saved by her = ₹ 50,000
∴ Money spent by her = ₹ 1,50,000 – ₹ 50,000 = ₹ 1,00,000
∴ Ratio of money earned by Seema to the money saved by her

$$= \frac{\text{Money earned}}{\text{Money saved}} = \frac{1,50,000}{50,000}$$

$$= \frac{15}{5} = \frac{15 \div 5}{5 \div 5} = \frac{3}{1} = 3:1$$

(b) Ratio of money saved by Seema to the money

$$\text{spent by her} = \frac{\text{Money saved}}{\text{Money spent}}$$

$$= \frac{50,000}{1,00,000} = \frac{5}{10} = \frac{5 \div 5}{10 \div 5} = \frac{1}{2} = 1:2$$

Ex 12.1 Class 6 Maths Question 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:
Number of teachers = 102
Number of students = 3300
∴ Ratio of number of teachers to the number of students

$$= \frac{\text{Number of teachers}}{\text{Number of students}}$$

$$= \frac{102}{3300} = \frac{102 \div 6}{3300 \div 6} = \frac{17}{550} = 17:550$$

Ex 12.1 Class 6 Maths Question 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:
Total number of students = 4320
Number of girls = 2300
∴ Number of boys = 4320 – 2300 = 2020

(a) Ratio of number of girls to the total number of students

$$= \frac{\text{Number of girls}}{\text{Total number of students}}$$

$$= \frac{2300}{4320} = \frac{2300 \div 20}{4320 \div 20} = \frac{115}{216} = 115 : 216$$

[HCF of 2300 and 4320 = 20]

(b) Ratio of number of boys to the number of girls

$$= \frac{\text{Number of boys}}{\text{Number of girls}}$$

$$= \frac{2020}{2300} = \frac{2020 \div 20}{2300 \div 20} = \frac{101}{115} = 101 : 115$$

(HCF of 2020 and 2300 = 20]

(c) Ratio of number of boys to the total number of students

$$= \frac{\text{Number of boys}}{\text{Total number of students}}$$

$$= \frac{2020}{4320} = \frac{2020 \div 20}{4320 \div 20}$$

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

[HCF of 2020 and 4320 = 20]

Ex 12.1 Class 6 Maths Question 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:
Total number of students = 1800
Number of students opting basketball = 750
Number of students who opted cricket = 800
Number of remaining students who opted table tennis = 1800 – (750 + 800)
= 1800 – 1550 = 250

(a) Ratio of number of students opted basketball to the number of students who opted table tennis

Number of students opting basketball Number of students opting table tennis

$$= \frac{\text{Number of students opting basketball}}{\text{Number of students opting table tennis}}$$

$$= \frac{750}{250} = \frac{750 \div 250}{250 \div 250} = \frac{3}{1}$$

$= 3 : 1$ [HCF of 750 and 250 = 250]

(b) Ratio of the students who opted cricket to the number of students opting basketball

$$= \frac{\text{Number of students opting cricket}}{\text{Number of students opting basketball}}$$

$$= \frac{800}{750} = \frac{800 \div 50}{750 \div 50} = \frac{16}{15}$$

$= 16 : 15$ [HCF of 800 and 750 = 50]

(c) Ratio of number of students who opted basketball to the total number of students

$$= \frac{\text{Number of students who opted basketball}}{\text{Total number of students}}$$

$$= \frac{750}{1800} = \frac{750 \div 150}{1800 \div 150} = \frac{5}{12}$$

$= 5 : 12$ [HCF of 750 and 1800 = 150]

Ex 12.1 Class 6 Maths Question 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:
Cost of 1 dozen, i.e., 12 pens = ₹180
∴ Cost of 1 pen = ₹18012 = ₹15
Cost of 8 ball pens = ₹56
∴ Cost of 1 ball pen = ₹ 568 = ₹ 7
Ratio of cost of 1 pen to cost of 1 ball pen

$$= \frac{\text{Cost of 1 pen}}{\text{Cost of 1 ball pen}} = \frac{15}{7} = 15 : 7$$

Thus required ratio is 15 : 7.
Ex 12.1 Class 6 Maths Question 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 the hall (in metres)	2	□	40
Length of the hall (in metres)	5	50	□

Solution:

We have $2 : 5 :: \square : 50 = \frac{2}{5} = \frac{\square}{50}$

$\Rightarrow \square \times 5 = 2 \times 50$

$\Rightarrow \square = \frac{2 \times \overset{10}{\cancel{50}}}{\cancel{5}} = 20$

We also have $2 : 5 :: 40 : \square$

$\therefore \frac{2}{5} = \frac{40}{\square} \Rightarrow \square \times 2 = 40 \times 5$

$\Rightarrow \square = \frac{\overset{20}{\cancel{40}} \times 5}{\cancel{2}} = 100$

$\therefore$ Required table is

Breadth of the hall (in metres)	2	20	40
Length of the hall (in metres)	5	50	100

Ex 12.1 Class 6 Maths Question 14.
Divide 20 pens between Sheela and Sangeeta in the ratio of 3 : 2.
Solution:
We have 3 + 2 = 5
Total number of pen = 20
∴ Sheela's share = 35 x 20 = 3 x 4 = 12 pens 5
Sangeeta's shares = 25 x 20 = 2 x 4 = 8 pens.
Thus Sheela gets 12 pens and Sangeeta gets 8 pens.
Ex 12.1 Class 6 Maths Question 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 that:
Money got by Shreya : Money got by Bhoomika = 15 : 12
∴ Sum = 15 + 12 = 27

$$\text{Share of Shreya} = \frac{15 \times 36}{27} = ₹\ 20$$

$$\text{Share of Bhoomika} = \frac{12 \times 36}{27} = ₹\ 16$$

Ex 12.1 Class 6 Maths Question 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:
Present age of father = 42 years.
Present age of his son = 14 years.
(a) Ratio of present age of father to the present age of son

$$= \frac{42}{14} = \frac{42 \div 14}{14 \div 14} = \frac{3}{1} = 3 : 1$$

[HCF of 42 and 14 = 14]

(b) When son was 12 years old, i.e., 14 – 12 = 2 years ago father's age = 42 – 2 = 40 years.
Ratio of the father's age to the son's age

$$\frac{40}{12} = \frac{40 \div 4}{12 \div 4} = \frac{10}{3} = 10 : 3$$

[HCF of 40 and 12 = 4]

(c) Ratio of father's age after 10 years, i.e., 42 + 10 = 52 years
to the age of son after 10 years, i.e., = 14 + 10 = 24 years

$$\frac{52}{24} = \frac{52 \div 4}{24 \div 4} = \frac{13}{6} = 13 : 6$$

(d) Ratio of the son's age to the age of father when he was only 30 years .
When father was 30 years,
i.e., before 42 – 30 = 12 years
Age of son was = 14 – 12 = 2 years
∴ Required ratio

$$= \frac{30}{2} = \frac{30 \div 2}{2 \div 2} = \frac{15}{1} = 15 : 1$$

Ex 12.2 Class 6 Maths 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
Solution:

$$(a)\ 15 \text{ and } 45 = \frac{15}{45} = \frac{15 \div 15}{45 \div 15} = \frac{1}{3}$$

$$40 \text{ and } 120 = \frac{40}{120} = \frac{40 \div 40}{120 \div 40} = \frac{1}{3}$$

∴ 15 : 45 :: 40 : 120
∴ 15, 45, 40 and 120 are in proportion.

(b) 33 and 121 = $\frac{33}{121} = \frac{33 \div 11}{121 \div 11} = \frac{3}{11}$

9 and 96 = $\frac{9}{96} = \frac{9 \div 3}{96 \div 3} = \frac{3}{32}$

Since $\frac{3}{11} \neq \frac{3}{32}$

∴ 33, 121, 9 and 96 are in proportion.

(c) 24 and 28 = $\frac{24}{28} = \frac{24 \div 4}{28 \div 4} = \frac{6}{7}$

36 and 48 = $\frac{36}{48} = \frac{36 \div 12}{48 \div 12} = \frac{3}{4}$

Since $\frac{6}{7} \neq \frac{3}{4}$

∴ 24, 28, 36 and 48 are not in proportion.

(d) 32 and 48 = $\frac{32}{48} = \frac{32 \div 16}{48 \div 16} = \frac{2}{3}$

70 and 210 = $\frac{70}{210} = \frac{70 \div 70}{210 \div 70} = \frac{1}{3}$

Since 23 ≠ 13
∴ 32, 48, 70 and 210 are not in proportion. 4

(e) 4 and 6 = $\frac{4}{6} = \frac{4 \div 2}{6 \div 2} = \frac{2}{3}$

8 and 12 = $\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$

∴ 4 : 6 :: 8 : 12
∴ 4, 6, 8 and 12 are in proportion.

(f) 33 and 44 = $\frac{33}{44} = \frac{33 \div 11}{44 \div 11} = \frac{3}{4}$

75 and 100 = $\frac{75}{100} = \frac{75 \div 25}{100 \div 25} = \frac{3}{4}$

∴ 33 : 44 : : 75 : 100
∴ 33, 44, 75 and 100 are in proportion.

Ex 12.2 Class 6 Maths 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
Solution:
(a) 16 : 24 :: 20 : 30
Product of the extreme terms = 16 x 30 = 480
Product of the middle terms = 24 x 20 = 480
∴ The given statement (a) → (T)

(b) 21 : 6 :: 35 : 10
Product of the extreme terms = 21 x 10 = 210
Product of the middle terms = 6 x 35 = 210
∴ The given statement (b) → (T)

(c) 12 : 18 :: 28 : 12
Product of the extreme terms = 12 x 12 = 144
Product of the middle terms = 18 x 28 = 504
Since 144 ≠ 504
∴ The given statement (c) → (F)

(d) 8 : 9 :: 24 : 27
Product of the extreme terms = 8 x 27 = 216
The product of the middle terms = 9 x 24 = 216
The given statement (d) → (T)

(e) 5.2 : 3.9 :: 3 : 4
Product of the extreme terms = 5.2 x 4 = 20.8
Product of the middle terms = 3.9 x 3 = 11.7
Since 20.8 ≠ 11.7
The given statement (e) → (F)

(f) 0.9 : 0.36 :: 10 : 4
Product of the extreme terms = 0.9 x 4 = 3.6
Product of the middle terms = 0.36 x 10 = 3.6
∴ The given statement (f) → (T)

Ex 12.2 Class 6 Maths Question 3.
Are the following statements true?
(a) 40 persons : 200 persons = ₹15 : ₹75
(b) 7.5 litres : 15 litres = 5 kg : 10 kg
(c) 99 kg : 45 kg = ₹ 44 : ₹ 20
(d) 32 m : 64 m = 6 sec : 12 sec
(e) 45 km : 60 km = 12 hours : 15 hours
Solution:
(a) 40 persons : 200 persons

$$= \frac{40}{200} = \frac{40 \div 40}{200 \div 40} = \frac{1}{5}$$

$$₹\ 15 : ₹\ 75 = \frac{15}{75} = \frac{15 \div 15}{75 \div 15} = \frac{1}{5}$$

∴ Statement (a) is true.

(b) 7.5 litres : 15 litres

$$= \frac{7.5}{15} = \frac{75}{150} = \frac{75 \div 75}{150 \div 75} = \frac{1}{2}$$

$$5\ \text{kg} : 10\ \text{kg} = \frac{5}{10} = \frac{5 \div 5}{10 \div 5} = \frac{1}{2}$$

∴ Statement (b) is true.

$$(c)\ 99\ \text{kg} : 45\ \text{kg} = \frac{99}{45} = \frac{99 \div 9}{45 \div 9} = \frac{11}{5}$$

$$₹\ 44 : ₹\ 20 = \frac{44}{20} = \frac{44 \div 4}{20 \div 4} = \frac{11}{5}$$

∴ Statement (c) is true.

$$(d)\ 32\ \text{m} : 64\ \text{m} = \frac{32}{64} = \frac{32 \div 32}{64 \div 32} = \frac{1}{2}$$

$$6\ \text{sec} : 12\ \text{sec} = \frac{6}{12} = \frac{6 \div 6}{12 \div 6} = \frac{1}{2}$$

∴ Statement (d) is true.

$$(e)\ 45\ \text{km} : 60\ \text{km} = \frac{45}{60} = \frac{45 \div 15}{60 \div 15} = \frac{3}{4}$$

$$12\ \text{hours} : 15\ \text{hours} = \frac{12}{15} = \frac{12 \div 3}{15 \div 3} = \frac{4}{5}$$

$$\text{Since } \frac{3}{4} \neq \frac{4}{5}$$

∴ Statement (e) is not true.

Ex 12.2 Class 6 Maths 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 ₹ 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 litres and ₹ 4 : ₹ 50
Solution:
(a) 25 cm : 1 m = 25 cm : 100 cm [∵ 1 m = 100 cm]

$$= \frac{25}{100} = \frac{25 \div 25}{100 \div 25} = \frac{1}{4}$$

$$₹\ 40 : ₹\ 160 = \frac{40}{160} = \frac{40 \div 40}{160 \div 40} = \frac{1}{4}$$

∴ The given ratios are in proportion.
Extreme terms are 25 cm and ₹ 160.
Middle terms are 1 m and ₹40.

$$(b)\ 39 \text{ litres} : 65 \text{ litres} = \frac{39}{65} = \frac{39 \div 13}{65 \div 13} = \frac{3}{5}$$

$$6 \text{ bottles} : 10 \text{ bottles} = \frac{6}{10} = \frac{6 \div 2}{10 \div 2} = \frac{3}{5}$$

∴ The given ratios are in proportion.
Extreme terms are 39 litres and 10 bottles.
Middle terms are 65 litres and 6 bottles.

$$(c)\ 2 \text{ kg} : 80 \text{ kg} = \frac{2}{80} = \frac{2 \div 2}{80 \div 2} = \frac{1}{40}$$

$$25 \text{ g} : 625 \text{ g} = \frac{25}{625} = \frac{25 \div 25}{625 \div 25} = \frac{1}{25}$$

$$\text{Since } \frac{1}{40} \neq \frac{1}{25}$$

∴ The given ratios are not in proportion.

(d) 200 mL : 2.5 litres = 2.5 litres = 2.5 x 1000 mL = 2500 mL

$$200\,\text{mL} : 2500\,\text{mL} = \frac{200}{2500} = \frac{200 \div 100}{2500 \div 100} = \frac{2}{25}$$

$$₹\ 4 : ₹\ 50 = \frac{4}{50} = \frac{4 \div 2}{50 \div 2} = \frac{2}{25}$$

$$\text{Since } \frac{2}{25} = \frac{2}{25}$$

∴ The given ratios are in proportion.
Extreme terms are 200 mL and ₹ 50
Middle terms are 2.5 litres and ₹ 4.

Ex 12.3 Class 6 Maths Question 1.
If the cost of 7 m of cloth is ₹ 294, find the cost of 5 m of cloth.
Solution:
Using unitary method, we have cost of 7 m of cloth = ₹294
Cost of 1 m of cloth = ₹ 2947
Cost of 5 m of cloth = ₹(2947 x 5) = ₹(42 x 5)
= ₹ 210
Thus, the required cost = ₹ 210

Ex 12.3 Class 6 Maths Question 2.
Ekta earns ₹ 1500 in 10 days. How much she will earn in 30 days?
Solution:
In 10 days Ekta earn ₹ 1500
In 1 days Ekta will earn ₹ 150010
In 30 days Ekta will earn ₹150010 x 30 = ₹4500
Thus the money earned by Ekta in 30 days = ₹4500.

Ex 12.3 Class 6 Maths Question 3.
If it has rained 276 mm in the last 3 days, how many centimeters of rain will fall in one full week (7 days)? Assume that the rain continues to fall at the same rate.
Solution:
In last 3 days the rain falls = 276 mm .
In 1 day the rain falls = 2763mm.
in 7 days the rain will fall = 2763 x 7 mm.
= 92 x 7 mm = 644 mm or 64.4 cm [∵ 1 cm = 10 mm]
Thus, the amount of rain fall in week = 64.4 cm.

Ex 12.3 Class 6 Maths Question 4.
Cost of 5 kg of wheat is ₹ 30.50.
(a) What will be the cost of 8 kg of wheat?
(b) What quantity of wheat can be purchased in ₹ 61?
Solution:
(a) Cost of 5 kg of wheat = ₹ 30.50
Cost of 1 kg of wheat = ₹ 30.505
Cost of 8 kg of wheat = ₹(30.505 x 8)
= ₹ 48.80
Thus, the required cost = ₹ 48.80

(b) The quantity of wheat purchased in ₹ 30.50 = 5 kg
The quantity of wheat purchased in ₹ 1 = 530.50 kg
The quantity of wheat purchased in ₹ 61 = 5x6130.50 kg
Thus, the required quantity of wheat = 10 kg

Ex 12.3 Class 6 Maths Question 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:
In last 3,0 days the quantity of drop in temperature = 15 degree Celsius
In last 1 day the quantity of drop in temperature = 1530 degree Celsius
In last 10 days the quantity of drop is temperature = 1530 x 10 degree Celsius
= 5 degree Celsius
Thus the required drop in temperature in last 10 days = 5 degree Celsius.

Ex 12.3 Class 6 Maths Question 6.
Shaina pays ₹ 7500 as rent for 3 months. How much does she has to pay for a whole year, if the rent per month remains same?
Solution:

Amount of rent paid in 3 months = ₹ 7500
Amount of rent paid in 1 month = ₹ 75003
Amount of rent paid in 12 months = ₹ (75003 x 12)
= ₹ 30,000
Thus the required amount of rent paid in 1 year = ₹ 30,000.

Ex 12.3 Class 6 Maths Question 7.
Cost of 4 dozen bananas is ₹ 60. How many bananas can be purchased for ₹ 12.50?
Solution:
∵ 1 dozen = 12 units
∴ 4 dozen of bananas = 12 x 4 = 48 bananas
₹ 60 is the cost of 4 dozen = 4 x 12 = 48 bananas
₹ 1 is the cost of = 4860 bananas 60.
₹ 12.50 is the cost of = 60060bananas
= 10 bananas
Thus the required number of bananas = 10

Ex 12.3 Class 6 Maths Question 8.
The weight of 72 books is 9 kg. What is the weight of 40 such books?
Solution:
Weight of 72 books = 9 kg
Weight of 1 books = 972kg
Weight of 40 books = 972 x 40 kg = 5 kg
Hence, the required weight = 5 kg.

Ex 12.3 Class 6 Maths Question 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:
To cover 594 km, the amount of diesel required = 108 litres.
To cover 1 km, the amount of diesel will be , required = 108594 litres
To cover 1650 km, the amount of diesel required = 108×1650594 litres = 300 litres
Thus, the required amount of diesel = 300 litres.

Ex 12.3 Class 6 Maths Question 10.
Raju purchases 10 pens for ₹150 and Manish buys 7 pens for ₹ 84. Can you say who got the pens cheaper?
Solution:
For Raju,
Cost of 10 pen = ₹150
Cost of 1 pen = ₹ 15010 = ₹ 15
For Manish,
Cost of 7 pens = ₹ 84
Cost of 1 pen = ₹ 847 = ₹12
∴ ₹ 12 < ₹ 15 Thus Manish got the pens cheaper than Raju.

Ex 12.3 Class 6 Maths Question 11.
Anish made 42 runs in 6 overs and Anup made 63 runs in 7 overs. Who made more runs per

over?
Solution:
Number of runs made by Anish in 6 overs = 42
Number of runs made by him in 1 over = 426 = 7 runs.
Number of runs made by Anup in 7 overs = 63
Number of runs made by him in 1 over = 637 = 9 runs.
∴ 9 runs > 7 runs.
Thus, Anup has made more runs.