Chapter – 3

Ratio and Proportion

Ex 3.1

Question 1.
Fill in the blanks.
(i) Ratio of ₹ 3 to ₹ 5 = ___
(ii) Ratio of 3 m to 200 cm = _____
(iii) Ratio of 5 km 400 m to 6 km = ___
(iv) Ratio of 75 paise to ₹ 2 = ___

Solution:
(i) 3 : 5
(ii) 3 : 2
Hint: 3m = 300 cm
(iii) 9 : 10
Hint: 5km 400 m = 5400m and 6 km = 6000 m
(iv) 3 : 8
Hint: ₹ 2 = 200 paise

Question 2.
Say whether the following statements are True or False.
(i) The ratio of 130 cm to 1 m is 13 : 10
(ii) One of the terms in a ratio cannot be 1

Solution:
(i) True
Hint: 1m = 100 cm
(ii) False

Question 3.
Find the simplified form of the following ratios.
(i) 15 : 20
(ii) 32 : 24
(iii) 7 : 15
(iv) 12 : 27
(v) 75 : 100

Solution:
(i) 15 : 20

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

$= 3 : 4$

(ii) 32 : 24

$= \frac{32}{24}$
$= \frac{4}{3}$

$= 4 : 3$

(iii) 7 : 15

(iv) 12 : 27

$= \frac{12}{27}$
$= \frac{4}{9}$

$= 4 : 9$

(v) 75 : 100

$= \frac{75}{100}$
$= \frac{3}{4}$
$= 3 : 4$

Question 4.
Akilan walks 10 km in an hour while Selvi walks 6 km in an hour. Find the simplest ratio of the distance covered by Akilan to that of Selvi.

Solution:
Ratio of the distance covered by Akilan to that of Selvi = 10 km : 6 km

$= \frac{10}{6}$
$= \frac{5}{3}$
$= 5 : 3$

Question 5.
The cost of parking a bicycle is Rs 5 and the cost of parking a scooter is Rs 15. Find the simplest ratio of the parking cost of a bicycle to that of a scooter.

Solution:
Ratio of the parking cost of a bicycle to that of a scooter = Rs 5 : Rs 15

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

Question 6.
Out of 50 students in a class, 30 are boys. Find the ratio of
(i) number of boys to the number of girls.
(ii) the number of girls to the total number of students.
(iii) the number of boys to the total number of students.

Solution:
Total no of students = 50
No of boys = 30
No of girls = 50 – 30 = 20
(i) Ratio of boys to girls = 30 : 20

$= \frac{30}{20}$
$= \frac{3}{2}$
= 3 : 2

(ii) Ratio of girls to the total number of students = 20 : 50

$= \frac{20}{50}$
$= \frac{2}{5}$
= 2 : 5

(iii) Ratio of boys to the total no of students = 30 : 50

$= \frac{30}{50}$
$= \frac{3}{5}$
= 3 : 5

Objective Type Questions

Question 7.
The ratio of ₹ 1 to 20 paise is _____
(a) 1 : 5
(b) 1 : 2
(c) 2 : 1
(d) 5 : 1

Solution:
(d) 5 : 1
Hint: ₹ 1 = 100 paise

Question 8.
The ratio of 1 m to 50 cm is
(a) 1 : 50
(b) 50 : 1
(c) 2 : 1
(d) 1 : 2

Solution:
(c) 2 : 1

Question 9.
The length and breadth of a window are 1 m and 70 cm respectively. The ratio of the length to the breadth is
a) 1 : 7
(b) 7 : 1
(c) 7 : 10
(d) 10 : 7

Solution:
(d) 10 : 7

Question 10.
The ratio of the number of sides of a triangle to the number of sides of a rectangle is
(a) 4 : 3
(b) 3 : 4
(c) 3 : 5
(d) 3 : 2

Solution:
(b) 3 : 4

Question 11.
If Azhagan is 50 years old and his son is 10 years old then the simplest ratio between the age of Azhagan to his son is
(a) 10 : 50
(b) 50 : 10
(c) 5 : 1
(d) 1 : 5

Solution:
(c) 5 : 1

Ex 3.2

Question 1.
Fill in the blanks of the given equivalent ratios.
(i) 3 : 5 = 9 : .....
(ii) 4 : 5 = ... : 10
(iii) 6 : ..... = 1 : 2

Solution:
(i) 15

Hint: $\frac{3}{5} = \frac{3\times3}{5\times3} = \frac{9}{15}$

(ii) 8

Hint: $\frac{4}{5} = \frac{4\times2}{5\times2} = \frac{8}{10}$

(iii) 12

Hint: $\frac{1}{2} = \frac{1\times6}{2\times6} = \frac{6}{12}$

Question 2.
Complete the table.

(i)

Feet	1	2	3	?
Inch	12	24	?	72

(ii)

Days	28	21	?	63
Weeks	4	3	2	?

Solution:
(i) 1 feet = 12 inches
3 feet = 3 × 12 inches = 36 inches
72 inches = 6 × 12 inches = 6 feet

(ii) 1 week = 7 days
2 weeks = 2 × 7 days = 14 days
63 days = 9 × 7 days = 9 weeks

Question 3.
Say True or False.
(i) 5 : 7 is equivalent to 21 : 15
(ii) If 40 is divided in the ratio 3 : 2, then the larger part is 24

Solution:
(i) False

Hint: $\frac{21}{15} = \frac{7}{5} = 7 : 5$

(ii) True

Hint: $\frac{3}{5} \times 40 = 24$

Handy LCM of two or more numbers Calculator displays LCM of 365, 838, 862 in a fraction of seconds i.e.

Question 4.
Give two equivalent ratios for each of the following.
(i) 3 : 2
(ii) 1 : 6
(iii) 5 : 4

Solution:
(i) 3 : 2

$$\frac{3}{2} = \frac{3\times2}{2\times2} = \frac{3\times3}{2\times3}$$
$$\frac{3}{2} = \frac{6}{4} = \frac{9}{6}$$

3 : 2 = 6 : 4 = 9 : 6

(ii) 1 : 6

$$\frac{1}{6}=\frac{1\times2}{6\times2}=\frac{1\times3}{6\times3}$$
$$\frac{1}{6}=\frac{2}{12}=\frac{3}{18}$$

1: 6 = 2 : 12 = 3 : 18

(iii) 5 : 4

$$\frac{5}{4}=\frac{5\times2}{4\times2}=\frac{5\times3}{4\times3}$$
$$\frac{5}{4}=\frac{10}{8}=\frac{15}{12}$$

5 : 4 = 10 : 8 = 15 : 12

Question 5.
Which of the two ratios is larger?
(i) 4 : 5 or 8 : 15
(ii) 3 : 4 or 7 : 8
(iii) 1 : 2 or 2 : 1

Solution:
(i) 4 : 5 (or) 8 : 15

$$4:5=\frac{4}{5}$$
$$8:15=\frac{8}{15}$$
$$\frac{4\times15}{5\times15}=\frac{60}{75}$$
$$\frac{8\times5}{15\times5}=\frac{40}{75}$$
$$\frac{60}{75}>\frac{40}{75}$$
$$\frac{4}{5}>\frac{8}{15}$$

4 : 5 > 8 : 15

(ii) 3 : 4 (or) 7 : 8

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

$$7:8=\frac{7}{8}$$

$$\frac{3\times8}{4\times8}=\frac{24}{32}$$

$$\frac{7\times4}{8\times4}=\frac{28}{32}$$

$$\frac{28}{32}>\frac{24}{32}$$

$$\frac{7}{8}>\frac{3}{4}$$

7 : 8 > 3 : 4

(iii) 1 : 2 (or) 2 : 1

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

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

$$=2$$

$$\frac{2}{1}>\frac{1}{2}$$

2 : 1 > 1 : 2

Question 6.
Divide the numbers given below in the required ratio.
(i) 20 in the ratio 3 : 2
(ii) 27 in the ratio 4 : 5
(iii) 40 in the ratio 6 : 14.

Solution:
(i) Ratio = 3 : 2
Sum of the ratio = 3 + 2 = 5
5 parts = 20

$$1 \text{ part} = \frac{20}{5} = 4$$

3 parts = 3 × 4 = 12
2 parts = 2 × 4 = 8
20 can be divided in the form as 12, 8.

(ii) Ratio = 4 : 5
Sum of the ratio = 4 + 5 = 9
9 parts = 27

$1 \text{ part} = \frac{27}{9} = 3$

4 parts = 4 × 3 = 12
5 parts = 5 × 3 =15
27 can be divided in the form as 12, 15.

(iii) 40 in the ratio 6 : 14
Ratio = 6 : 14
Sum of the ratio = 6 + 14 = 20
20 parts = 40

$1 \text{ part} = \frac{40}{20} = 2$

6 parts = 2 × 6 = 12
14 parts = 2 × 14 = 28
40 can be divided in the form as 12, 28.

Question 7.
In a family, the amount spent in a month for buying Provisions and Vegetables are in the ratio 3 : 2. If the allotted amount is Rs 4000, then what will be the amount spent for
(i) Provisions and
(ii) Vegetables?

Solution:
Allotted amount = Rs 4000
Ratio = 3 : 2
Sum of the ratio = 3 + 2 = 5
5 parts = Rs 4000

$1 \text{ part} = \text{Rs } \frac{4000}{5} = \text{Rs } 800$

Provisions: Vegetables = 3 : 2
3 parts = 3 × Rs 800 = Rs 2400

2 parts = 2 × Rs 800 = Rs 1600
Amount spent for provisions = Rs 2400
Amount spent for vegetables = Rs 1600

Question 8.
A line segment 63 cm long is to be divided into two parts in the ratio 3 : 4. Find the length of each part.

Solution:
Total length = 63 cm Ratio = 3 : 4
Sum of the ratio = 3 + 4 = 7
7 parts = 63 cm

$1 \text{ part} = \frac{63}{7} = 9 \text{ cm}$

3 parts = 3 × 9 cm = 27 cm
4 parts = 4 × 9 cm = 36 cm
∴ 63 cm can be divided into the parts as 27 cm and 36 cm.

Objective Type Questions

Question 9.
If 2 : 3 and 4 : …… are equivalent ratios, then the missing term is
(a) 6
(b) 2
(c) 4
(d) 3

Solution:
(a) 6

Question 10.
An equivalent ratio of 4 : 7 is
(a) 1 : 3
(b) 8 : 15
(c) 14 : 8
(d) 12 : 21

Solution:
(d) 12 : 21

Question 11.

Which is not an equivalent ratio of $\frac{16}{24}$?

(a) $\frac{6}{9}$

(b) $\frac{12}{18}$

(c) $\frac{10}{15}$

(d) $\frac{20}{28}$

Solution:

(d) $\frac{20}{28}$

Question 12.

If Rs 1600 is divided

(a) Rs 480

(b) Rs 800

(c) Rs 1000

(d) Rs 200

Solution:

(c) Rs 1000

Ex 3.3

Question 1.

Fill in the blanks.

(i) 3 : 5 :: …….. : 20

(ii) …….. : 24 :: 3 : 8

(iii) 5 : …….. :: 10 : 8 :: 15 : ……..

(iv) 12 : …….. :: ……. :: 4 = 8 : 16

Solution:

(i) 12

Hint:

$5x = 3 \times 20 \Rightarrow x = 12$

(ii) 9

$8x = 24 \times 3 \Rightarrow x = 9$

(iii) 4, 12

Hint:

$10x = 8 \times 5 = 40 \Rightarrow x = 4$

$10y = 8 \times 15 = 120 \Rightarrow y = 12$

(iv) 24, 2

Hint:

$16y = 8 \times 4 \Rightarrow y = 2$
$12 \times 4 = 2x \Rightarrow x = 24$

Question 2.
Say True or False.
(i) 2 : 7 : : 14 : 4
(ii) 7 Persons are to 49 Persons as 11 kg is to 88 kg
(iii) 10 books are to 15 books as 3 books are to 15 books.

Solution:
(i) False
Hint:
$7 \times 14 \neq 4 \times 2$
$98 \neq 8$
(ii) False
Hint:
7 : 49 :: 11 : 48
$49 \times 11 \neq 7 \times 48$
$539 \neq 336$
(iii) False
Hint:
10 : 15 :: 3 : 5

$$\frac{10}{15} = \frac{5\times2}{5\times3} = \frac{2}{3} \Rightarrow \frac{3}{5} = \frac{3}{5}$$

Question 3.
Using the numbers 3, 9, 4, 12 write two ratios that are in proportion.

Solution:
(i) 3, 9, 4, 12
Here product of extremes $= 3 \times 12 = 36$
Product of means $= 9 \times 4 = 36$
3 : 9 : : 4 : 12

(ii) Also if we take 9, 3, 12, 4
Product of extremes $= 9 \times 4 = 36$
Product of means $= 3 \times 12 = 36$
9 : 3 : : 12 : 4

Question 4.
Find whether 12, 24,18, 36 are in order that can be expressed as two ratios that are in proportion.

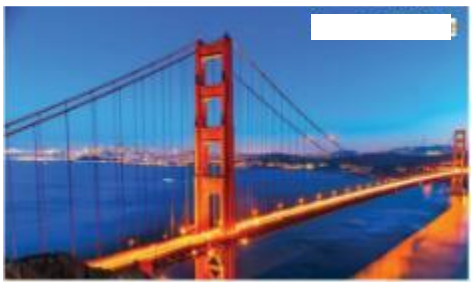
Solution:
Yes, 12 : 24 : : 18 : 36
Because product of extremes $12 \times 36 = 432$
Product of means $= 24 \times 18 = 432$
12 : 24 :: 18 : 36.

Question 5.
Write the mean and extreme terms in the following ratios and check whether they are in proportion.
(i) 78 liters is to 130 liters and 12 bottles are to 20 bottles
(ii) 400 gm is to 50 gm and 25 rupees is to 625 rupees

Solution:
(i) 78 : 130 :: 12 : 20
Extreme terms are 78 and 20.
Mean terms are 130 and 12.
Product of Extremes $= 78 \times 20 = 1560$
Product of Means $= 130 \times 12 = 1560$
Product of Extremes = Product of means
It is in proportion.

(ii) 400 : 50 : : 25 : 625
Product of extremes $= 400 \times 625 = 2{,}50{,}000$
Product of means $= 50 \times 25 = 1250$
Here product of extremes ≠ product of means
400 : 50 and 25 : 625 are not in proportion.

Question 6.
America's famous Golden Gate bridge is 6480 ft long with 756 ft tall towers. A model of this bridge exhibited in a fair is 60 ft long with 7 ft tall towers. Is the model in proportion to the original bridge?



Solution:
6480 : 756, 60 : 7
Product of the means $= 756 \times 60 = 45360$
Product of the extremes $= 6480 \times 7 = 45360$
$ad = bc$
$\therefore$ They are in proportion

Objective Type Questions

Question 7.
Which of the following ratios are in proportion?
(a) 3 : 5, 6 : 11
(b) 2 : 3, 9 : 6
(c) 2 : 5, 10 : 25
(d) 3 : 1, 1 : 3

Solution:
(c) 2 : 5, 10 : 25
Hint:
$2 \times 25 = 5 \times 10$
$\Rightarrow 50 = 50$

Question 8.
If the ratios formed using the numbers 2, 5, x, 20 in the same order are in proportion, then 'x' is
(a) 50
(b) 4
(c) 10
(d) 8

Solution:
(d) 8
$5x = 2 \times 20 \Rightarrow x = 8$

Question 9.
If 7 : 5 is in proportion to x : 25, then 'x' is
(a) 27
(b) 49
(c) 35
(d) 14

Solution:
(c) 35
Hint:
$5x = 7 \times 25 \Rightarrow x = 35$

Ex 3.4

Question 1.
Fill in the blanks.
(i) If the cost of 3 pens is Rs 18, then the cost of 5 pens is ……..
(ii) If Karkuzhali earns Rs 1800 in 15 days, then she earns Rs 3000 in …….. days

Solution:
(i) ₹ 30

Hint: $5 \times \frac{18}{3} = 5 \times 6 = ₹ 30$

(ii) 25 Days

Hint:

$\frac{1800}{3000} = \frac{15}{x}$

$\Rightarrow x = \frac{15 \times 3000}{1800} = 25$ days

Question 2.
Say True or False.
(i) If the weight of 40 books is 8 kg, then the weight of 15 books is 3 kg.
(ii) A car travels 90 km in 3 hours with constant speed. It will travel 140 km in 5 hours at the same speed.

Solution:
(i) True

Hint: Weight of 1 book = $\frac{8}{40} = \frac{1}{5}\mathbf{kg}$

Flence Weight of 15 books = $\frac{1}{5} \times \mathbf{15} = \mathbf{3kg}$

(ii) False

1 hour the car travels = $\frac{90}{3}$ = 30 km

In 5 hours the car travels $= 30 \times 5 = 150$ km

Question 3.
If a person reads 20 pages of a book in 2 hours, how many pages will he read in 8 hours at the same speed?

Solution:
In 2 hours, pages read = 20

In 1 hour, pages read = $\frac{20}{2}$ = 10

In 8 hours, pages read = 10 × 8
= 80 pages

Question 4.
The cost of 15 chairs is ₹ 7500. Find the number of such chairs that can be purchased for ₹ 12,000?

Solution:
Cost of 15 chairs = Rs 7500

Cost of 1 chair = Rs $\frac{7500}{15}$ = Rs 500

Number of chairs that can be purchased for Rs 12000 = 12000/500 = 24 chairs

Question 5.
A car covers a distance of 125 km in 5 kg of LP Gas. How much distance will it cover in 3 kg of LP Gas?

Solution:
In 5 kg of LPG gas, distance covered = 125 km

In 1 kg of LPG gas, distance covered = 125/5 = 25 km

In 3 kg of LPG gas, distance covered = 3 × 25 km = 75 km

Question 6.
Cholan walks 6 km in 1 hour at a constant speed. Find the distance covered by him in 20 minutes at the same speed.

Solution:
In 1 hour (60 minutes), distance covered = 6 km

In 1 minute, distance covered = $\frac{6km}{60min}$ = $\frac{6000m}{60}$ = 100 m

In 20 minutes, distance covered = 20 × 100 m = 2000 m = 2 km

Question 7.
The number of correct answers given by Kaarmugilan and Kavitha in a quiz

competition are in the ratio 10 : 11. If they had scored a total of 84 points in the competition, then how many points did Kavitha get?

Solution:
Total points scored = 84 Ratio = 10 : 11
Sum of the ratio = 10 + 11 = 21
21 parts = 84 points

$$1 \text{ part} = \frac{84}{21} = 4 \text{ points}$$

Kavitha = 11 parts
Kaarmugilan = 10 parts
Foints scored by Kavitha = 11 parts = 11 × 4 points = 44 points

Question 8.
Karmegam made 54 runs in 9 overs and Asif made 77 runs in 11 overs. Whose run rate is better? (run rate = ratio of runs to overs)

Solution:
Karmegam Runs made in 9 overs = 54

$$\text{Runs made in 1 over} = \frac{54}{9} = 6 \text{ runs}$$

Asif Runs made in 11 overs = 77

$$\text{Runs made in 1 over} = \frac{77}{11} = 7 \text{ runs}$$

∴ Asif's run rate is better than Karmegam.

Question 9.
You purchase 6 apples for Rs 90 and your friend purchases 5 apples for Rs 70. Whose purchase is better?

Solution:
Myself
Cost of 6 apples = Rs 90

$$\text{Cost of 1 apple} = \frac{Rs90}{6} = \text{Rs } 15$$

Friend's purchase
Cost of 5 apples = Rs 70

$$\text{Cost of 1 apple} = \frac{70}{5} = \text{Rs } 14$$

∴ Friend's purchase is better than mine.

Objective Type Questions

Question 10.
If a Barbie doll costs ₹ 90, then the cost of 3 such dolls is ₹ _____
(a) 260
(b) 270
(c) 30
(d) 93

Solution:
(b) 270
Hint:
Cost of 3 dolls = 90 × 3 = ₹ 270

Question 11.
If 8 oranges cost Rs 56, then the cost of 5 oranges is Rs …….
(a) 42
(b) 48
(c) 35
(d) 24

Solution:
(c) 35

Question 12.
If a man walks 2 km in 15 minutes, then he will walk _____ km in 45 minutes.
(a) 10
(b) 8
(c) 6
(d) 12

Solution:
(c) 6
Hint:

1 min he walks = $\frac{2}{15}$ km
45 min he walks = $\frac{2}{15}$ × 45 = 6 km.

Ex 3.5

Miscellaneous Practice Problems

Question 1.
The maximum speed of some of the animals are given below:
the Elephant = 20 km/h; the
Lion = 80 km/h;
the Cheetah =100 km/h
Find the following ratios of their speeds in simplified form and find which ratio is the least?
(i) the Elephant and the Lion
(ii) the Lion and the Cheetah
(iii) the Elephant and the Cheetah

Solution:
(i) The Elephant: the Lion

$= 20 : 80 = \frac{20}{80} = \frac{1}{4} = 1 : 4$

(ii) the Lion : the Cheetah

$= 80 : 100 = \frac{80}{100} = \frac{4}{5} = 4 : 5$

(iii) the Elephant: the Cheetah

$= 20 : 100 = \frac{20}{100} = \frac{1}{5} = 1 : 5$

The ratio of Elephant to Cheetah is the least.

Question 2.
A particular high school has 1500 students 50 teachers and 5 administrators. If the school grows to 1800 students and the ratios are maintained, then find the number of teachers and administrators.

Solution:
Administrators: teachers: students = 5 : 50 : 1500 = 1 : 10 : 300
If the school grows to 1800 students then 10 parts = teachers
1 part = administrators
300 parts = 1800

$1 \text{ part} = \frac{1800}{300} = 6$

10 parts = 6 × 10 = 60
So, if the school grows to 1800 students the new ratio is administrators : teachers: students
6 : 60 : 1800

Question 3.
I have a box which has 3 green, 9 blue, 4 yellow, 8 orange coloured cubes in it.
(a) What is the ratio of orange to yellow cubes?
(b) What is the ratio of green to blue cubes?
(c) How many different ratios can be formed, when you compare each colour to any one of the other colours?

Solution:
Number of green cubes = 3
Number of blue cubes = 9
Number of yellow cubes = 4
Number of orange cubes = 8

(a) Ratio of orange to yellow cubes $\frac{\text{Number of orange cubes}}{\text{Number of yellow cubes}} = \frac{8}{4} = \frac{2}{1} = 2:1$

Ratio of orange to yellow cubes = 2 : 1

(b) $\frac{\text{Number of green cubes}}{\text{Number of blue cubes}} = \frac{3}{9} = \frac{1}{3}$

Ratio of green to blue cubes = 1 : 3
(c) The ratios can be Orange : Yellow, Orange: blue, Orange : green, Yellow : Orange, yellow : blue, yellow : green, blue : green, blue : orange, blue : yellow, green : orange, green : yellow, green : blue. Thus 12 ratios can be formed.

Question 4.
A gets double of what B gets and B gets double of what C gets. Find A : B and B : C and verify whether the result is in proportion or not.

Solution:
Let x be the part owned by C then A : B : C = 2(2x) : 2x : x = 4x : 2x : x
A : B = 4x : 2x = 2 : 1
B : C = 2x : x = 2 : 1
A : B : : B : C. i.e, They are in proportion.

Question 5.
The ingredients required for the preparation of Ragi Kali, a healthy dish of Tamilnadu is given below.

Ingredients	Quantity
Ragi flour	4 cups
Raw rice broken	1 cup
Water	8 cups
Sesame oil	15 ml
Salt	10 mg

(a) If one cup of ragi flour is used then, what would be the amount of raw rice required?
(b) If 16 cups of water are used, then how much ragi flour should be used?
(c) Which of these ingredients cannot be expressed as a ratio? Why?

Solution:

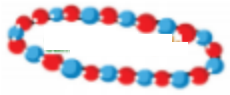
(i) $\frac{1}{4}$ cup

(ii) 8 cups
(iii) Ragi flour, Raw rice, and water are in one unit. Sesame oil and salt are in different units. These different units cannot be compared and cannot be expressed as a ratio because the two quantities of a ratio should be in the same unit.

Question 6.
Antony brushes his teeth in the morning and night on all days of the week. Shabeen brushes her teeth only in the morning. What is the ratio of the number of times they brush their teeth in a week?

Solution:
Number of times Antony brushes a day $= 2$
Number of times Antony brushes a week $= 2 \times 7 = 14$
Number of times Shabeen brushes a day $= 1$
Number of times Shabeen brushes a week $= 1 \times 7 = 7$
Number of times Antony brushes : Number of times Antony brushes $= 14 : 7 = 2 : 1$
The required ratio $= 2 : 1$

Question 7.
Thirumagal's mother wears a bracelet made of 35 red beads and 30 blue beads. Thirumagal wants to make smaller bracelets using the same two coloured beads in the same ratio. In how many different ways can she make the bracelets?



Question 8.
Team A wins 26 matches out of 52 matches. Team B wins three fourth of 52 matches played. Which team has a better winning record?

Solution:

$$\text{Team A} = \frac{26}{52} = \frac{1}{2}$$
$$\text{Team B} = \frac{3}{4} \times 52 = 39$$

Team B has a better winning record.

Question 9.
In a school excursion, 6 teachers and 12 students from 6th standard and 9 teachers and 27 students from 7th standard, 4 teachers and 16 students from 8th standard took part. Which class has the least teacher to student ratio?

Solution:
Std VI – teachers: students = 6 : 12 = 1 : 2
Std VII – teachers : students = 9 : 27 = 1 : 3
Std VIII – teachers : students = 4 : 16 = 1 : 4
Std VIII has the least ratio.

Question 10.
Fill the boxes using any set of suitable numbers 6 : ___ : : ___ : 15

Solution:
6 : ……. = …….. : 15
Product of the extremes = 6 × 15 = 90
Set of suitable numbers
1 and 90, 2 and 45, 3 and 30, 5 and 18, 6 and 15

Question 11.
From your school diary, write the ratio of the number of holidays to the number of working days in the current academic year.

Solution:
Number of holidays = 145
Number of working days = 220
Holidays : working days = 145 : 220

$= \frac{145}{220}$

$= \frac{29}{44}$

$= 29 : 44$

Question 12.

If the ratio of Green, Yellow and Black balls in a bag is 4 : 3 : 5, then

(a) Which is the most likely ball that you can choose from the bag?

(b) How many balls in total are there in the bag if you have 40 black balls in it?

(c) Find the number of green and yellow balls in the bag.

Solution:

Green : Yellow : Black = 4 : 3 : 5

(i) Blackballs;

(ii) 96 balls (32 + 24 + 40);

(iii) green balls = 32

yellow balls = 24