CHAPTER -7 Comparing Quantities | CLASS 7TH MATHS IMPORTANT QUESTIONS

Important Questions

Question 1.
Find the ratio of:
(a) 5 km to 400 m
(b) 2 hours to 160 minutes
Solution:
(a) 5 km = 5 × 1000 = 5000 m
Ratio of 5 km to 400 m
= 5000 m : 400 m
= 25 : 2
Required ratio = 25 : 2
(b) 2 hours = 2 × 60 = 120 minutes
Ratio of 2 hours to 160 minutes
= 120 : 160
= 3 : 4
Required ratio = 3 : 4

Question 2.
State whether the following ratios are equivalent or not?
(a) 2 : 3 and 4 : 5
(b) 1 : 3 and 2 : 6
Solution:
(a) Given ratios = 2 : 3 and 4 : 5

or $\frac{2}{3}$ and $\frac{4}{5}$
LCM of 3 and 5 = 15
∴ $\frac{2}{3} = \frac{2 \times 5}{3 \times 5} = \frac{10}{15}$
and $\frac{4}{5} = \frac{4 \times 3}{5 \times 3} = \frac{12}{15}$
Here, $\frac{10}{15} < \frac{12}{15}$

Hence 2 : 3 and 4 : 5 are not equivalent ratios.
(b) Given ratios = 1 : 3 and 2 : 6
LCM of 3 and 6 = 6

or $\frac{1}{3}$ and $\frac{2}{6}$
LCM of 3 and 6 = 6
∴ $\frac{1}{3} = \frac{1 \times 2}{3 \times 2} = \frac{2}{6}$
and $\frac{2}{6} = \frac{2 \times 1}{6 \times 1} = \frac{2}{6}$
Here, $\frac{2}{6} = \frac{2}{6}$

Hence, 1 : 3 and 2 : 6 are equivalent ratios.

Question 3.
Express the following ratios in simplest form:
(a) 615 : 213
(b) 42 : 56
Solution:

(a) $6\dfrac{1}{5} : 2\dfrac{1}{3}$

$\Rightarrow \quad \dfrac{31}{5} : \dfrac{7}{3} \quad \Rightarrow \quad \dfrac{31}{5} \div \dfrac{7}{3}$

$\Rightarrow \quad \dfrac{31}{5} \times \dfrac{3}{7} = \dfrac{63}{35}$ or $63 : 35$

Hence, the required form of the ratio
$= 63 : 35$.

(b) $42 : 56$

$\Rightarrow \quad \dfrac{42}{56} = \dfrac{42 \div 14}{56 \div 14} = \dfrac{3}{4}$ or $3 : 4$

[HCF of 42 and 56 = 14]

Hence, the required form of ratio = 3 : 4.

Question 4.

Compare the following ratios:

3 : 4, 5 : 6 and 3 : 8

Solution:

Given: 3 : 4, 5 : 6 and 3 : 8

or 34 , 56 and 38

LCM of 4, 6 and 8 = 24

$$\dfrac{3 \times 6}{4 \times 6} = \dfrac{18}{24}, \dfrac{5 \times 4}{6 \times 4} = \dfrac{20}{24}$$

and $\quad \dfrac{3 \times 3}{8 \times 3} = \dfrac{9}{24}$

Here 9 < 18 < 20

or $\quad \dfrac{9}{24} < \dfrac{18}{24} < \dfrac{20}{24}$

or $\quad \dfrac{3}{8} < \dfrac{3}{4} < \dfrac{5}{6}$

Hence, 3 : 8 < 3 : 4 < 5 : 6

Question 5.

State whether the following ratios are proportional or not:

(i) 20 : 45 and 4 : 9

(ii) 9 : 27 and 33 : 11

Solution:

(i) 20 : 45 and 4 : 9

Product of extremes = 20 × 9 = 180
Product of means = 45 × 4 = 180
Here, the product of extremes = Product of means
Hence, the given ratios are in proportion.
(ii) 9 : 27 and 33 : 11
Product of extremes = 9 × 11 = 99
Product of means = 27 × 33 = 891
Here, the product of extremes ≠ Product of means
Hence, the given ratios are not in proportion.

Question 6.
24, 36, x are in continued proportion, find the value of x.
Solution:
Since, 24, 36, x are in continued proportion.
24 : 36 :: 36 : x
⇒ 24 × x = 36 × 36
⇒ x = 54
Hence, the value of x = 54.

Question 7.
Find the mean proportional between 9 and 16.
Solution:
Let x be the mean proportional between 9 and 16.
9 : x :: x : 16
⇒ x × x = 9 × 16
⇒ x^2 = 144
⇒ x = √144 = 12
Hence, the required mean proportional = 12.

Question 8.
Find:
(i) 36% of 400
(ii) 1623% of 32
Solution:

(i) 36% of 400 = $\frac{36}{100}$ × 400 = 36 × 4 = 144

(ii) $16\frac{2}{3}$% of 32 = $\frac{50}{3}$% of 32 = $\frac{50}{3}$ × $\frac{1}{100}$ × 32

= $\frac{16}{3}$ = $5\frac{1}{3}$

Question 9.
Find a number whose 614% is 12.
Solution:

Let the required number be x.

$$6\frac{1}{4}\% \text{ of } x = 12$$

$$\frac{25}{4}\% \text{ of } x = 12$$

$$\Rightarrow \frac{25}{4 \times 100} \times x = 12$$

Hence, the required number = 192. $\Rightarrow \quad x = \dfrac{12 \times 4 \times 100}{25} = 192$

Question 10.

What per cent of 40 kg is 440 g?

Solution:

Let x% of 40 kg = 440 g

$$\Rightarrow \frac{x}{100} \times 40 \times 1000 = 440$$

$$\Rightarrow \qquad\qquad 400x = 440$$

$$\therefore \qquad\qquad x = \frac{440}{400} = 1.1\%$$

Hence, the required Percentage = 1.1%