RATIO AND PROPORTION(1/3)

Class VI

Chapter 12

RATIO

- The comparison by division is ratio.

- We denote ratio using the symbol **:**

- When we compare two quantities in terms of " how many times" we are talking about

   Ratio.

   Eg : Ishas's weight is 30 kg and her Mother is 60 kg , so we can say mother's

   weight is twice Ishas's weight   *or*

   The ratio of Mother's weight to Ishas's weight = $\frac{60}{30}$ = 2: 1.

- **Note-Two quantities can be compared only if they are in the same unit.**

SAME RATIO IN DIFFERENT SITUATIONS :

- Eg Sheena has 2 marbles and her friend Shabnam has 3 marbles.

   Then, the ratio of marbles that Sheena and Shabnam

   have is 2 : 3

.

- Eg There are 24 girls and 16 boys going for a picnic.

   Ratio of the number of girls to the number of boys is

$$\frac{24}{16} = \frac{3}{2} = 3: 2$$

Try to find : Find the ratio of number of doors and the number of windows in your classroom.

ADDITIONAL EXAMPLE : WRITING RATIOS IN SIMPLEST

1. Write the ratio 15 bikes to 9 cars in simplest form.

Solution:- *Step1- Write the ratio as a fraction.*

$$\frac{\text{bikes}}{\text{cars}} = \frac{15}{9}$$

Step2- Simplify.

$$\frac{\text{bikes}}{\text{cars}} = \frac{15 \div 3}{9 \div 3} = \frac{5}{3}$$

The ratio 15 bikes to 9 cars is 5:3.

2. Write the ratio 24 shirts to 9 jeans in simplest form.

Solution:- Step1- Write *the ratio as a fraction*

$$\frac{\text{shirts}}{\text{jeans}} = \frac{24}{9}$$

Step2- Simplify.

$$\frac{\text{shirts}}{\text{jeans}} = \frac{24 \div 3}{9 \div 3} = \frac{8}{3}$$

The ratio of shirts to jeans is   , 8:3, or 8 to 3.

PRACTICE

Express the following in Ratios

- 9 cows to 25 sheep

- 14 cars to 28 trucks

- 20 Knives to 40 spoons

EQUIVALENT RATIOS

- **We can get equivalent ratios by multiplying or dividing the numerator and denominator by the same number.**

Eg 2: Abhay travelled 75km to reach his office and Anuj travelled 45km.

The ratio of distance travelled by Abhay to distance travelled by Arjun is

$$\frac{75 \div 15}{45 \div 15} = \frac{5}{3} \text{ or } 5:3$$

- **When simplifying ratios based on measurements, write the quantities with the same units.**

Eg 3: Write the ratio 30 cm to 1.2 m in simplest form.

First convert m to cm , then simplify 1.2m= 1.2× 100 =120

The required ratio is 30 : 120 = 1:4

Eg: Ajay poured 8 ml of juice from a 64 ml bottle. Ram poured 16 ml of juice from a 128 ml bottle.   Are the ratios of poured juice to starting amount of juice equivalent

Yes, 1: 8 each

$$\frac{13}{39} \text{ and } \frac{16}{48}$$

$$\frac{21}{49} \text{ and } \frac{28}{56}$$

Complete the table which shows distance from Anju's home to school(km) to distance from Ram's home to school(km) is 2:1

Distance from Anju's home to school(km)	10		44	6
Distance from Ram's home to school(km)	5	4	22	