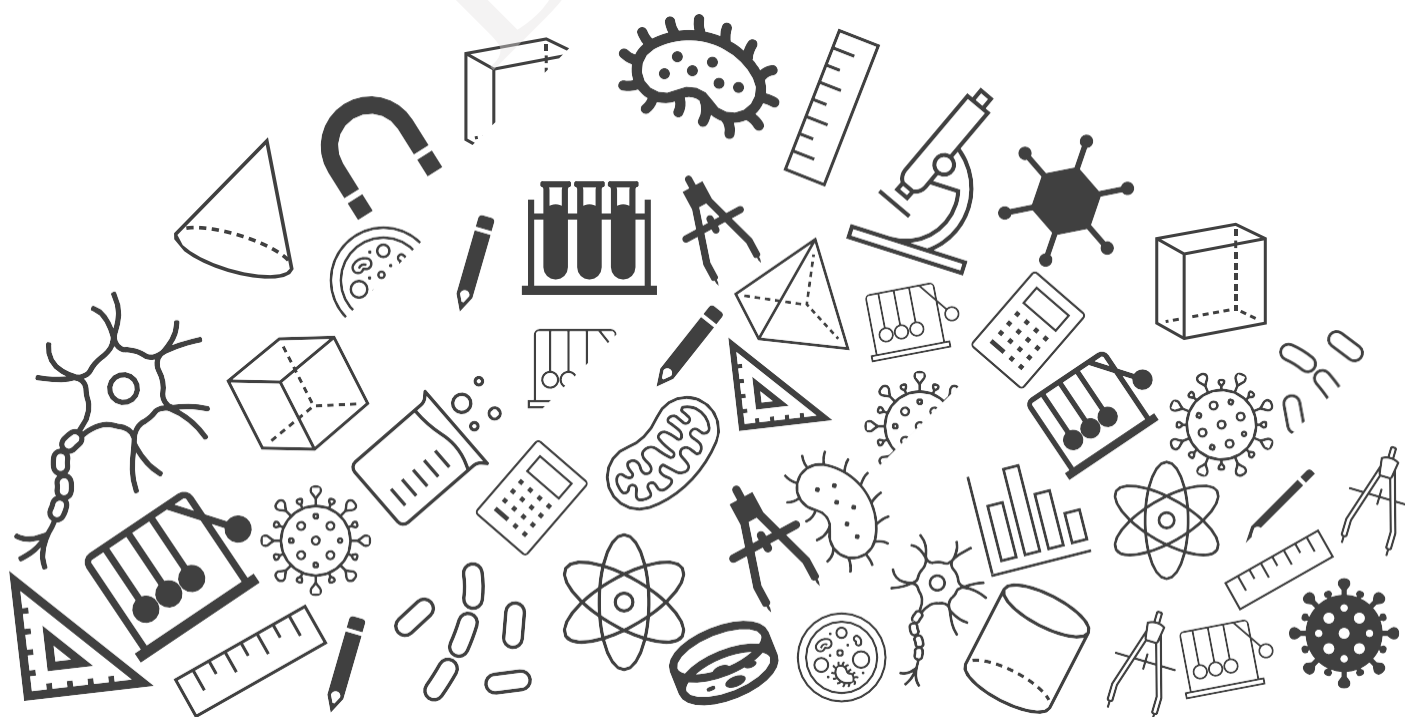




Grade 08

Maths Chapter Notes



BYJU'S Classes

Chapter Notes

Direct and Inverse Proportions

Grade 08

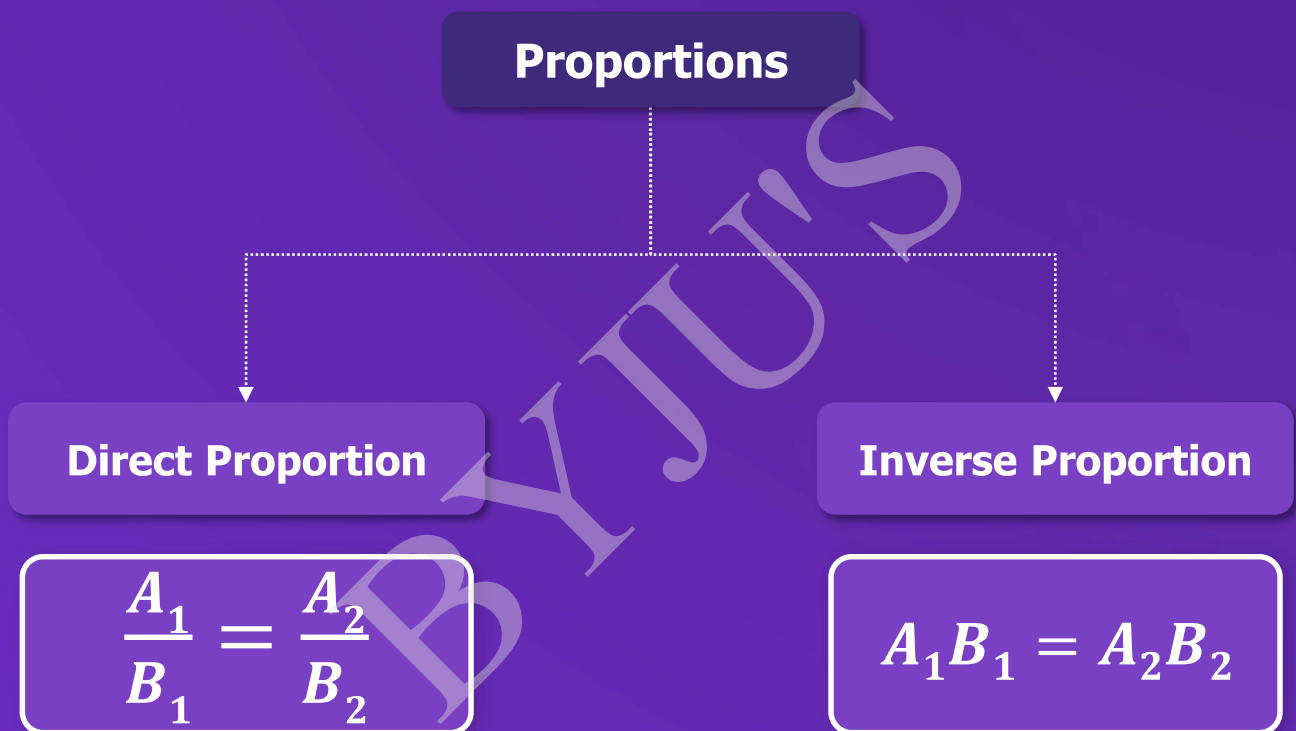


Topics to be Covered

1. Direct Proportions

2. Inverse Proportions

Mind Map



1. Direct Proportions

Two quantities, A and B, are said to be in **direct proportion** if they **increase** or **decrease** together in such a manner that the **ratio** of their corresponding values **remains constant**.



Represented as $A \propto B$

$\frac{A}{B} = c$, where c is the proportionality constant

This can also be written as $\frac{A_1}{B_1} = \frac{A_2}{B_2}$

Example:

In the table below, cost (in Rs) always increasing when there is an increase in weight of sugar (in kg) such that ratio of cost and weight remains constant.

Weight of sugar (in kg)	1	3	5	6
Cost (in Rs)	18	54	90	108

The diagram shows arrows connecting the weight values to the cost values with multiplication factors: 1 kg to 3 kg is $\times 3$, 1 kg to 5 kg is $\times 5$, 1 kg to 6 kg is $\times 6$, 3 kg to 5 kg is $\times 5/3$, 3 kg to 6 kg is $\times 2$, and 5 kg to 6 kg is $\times 6/5$.

Cost \propto Weight

2. Inverse Proportions

Two quantities, A and B, are said to be in **inverse proportion** if an increase in A causes a **proportional decrease** in B (and vice-versa) in such a manner that the **product** of their corresponding values **remains constant**.



Represented as $A \propto \frac{1}{B}$

$A \times B = c$, where c is the proportionality constant

Can also be written as $A_1B_1 = A_2B_2$

Example:

In the table below, time taken (in minutes) to cover a fixed distance reducing proportionally to the increase in speed (in km/hour) such that product of speed and time remains constant.

		$\times 2$	$\times 3$	$\times 15$
Speed (in km/hour)	3	6	9	45
Time taken (in minutes)	30	15	10	2
		$\times \frac{1}{2}$	$\times \frac{1}{3}$	$\times \frac{1}{15}$

Speed $\propto \frac{1}{\text{Time taken}}$