Revision Notes

Class 8 Maths

Chapter 11 – Direct and Inverse Proportions

Variations and proportions:
When the values of two quantities depend on one another in a way, such that the change in one quantity causes change in the other, the two quantities are said to be in variation.

Direct Proportion:
- Two quantities a and b are said to be in direct proportion if they vary i.e., they increase or decrease together in such a manner that the ratio of their corresponding values remains constant. That is if $\dfrac{a}{b} = c$ [c is a positive number, then a and b are said to **change directly**.
- To explain the condition, let a_1, a_2 be the two values of a and b_1, b_2 be the values of b, then $\dfrac{a_1}{b_1} = \dfrac{a_2}{b_2}$.
- To represent two quantities related proportionately, we write $a \propto b$.
  Examples of direct proportion:
- If the quantity of petrol in a car increases, the total distance covered also increases.
- If the radius of a circle increases, the area of that circle also increases.

Inverse proportions:
- The two quantities a and b are said to be in inverse proportion if an increment in one causes a proportional decrement in the other or vice-versa that is, the product of their corresponding values remains constant. Which means, if $ab = c$ or $a = \dfrac{c}{b}$ [c is a constant], then a and b are said to **vary inversely.**
- To explain this case, let a_1, a_2 be the two values of a and b_1, b_2 be the values of b, then $a_1 b_1 = a_2 b_2$.
- To represent two quantities related inversely, we write $a \propto \dfrac{1}{b}$.

For example:

As the speed of a vehicle increases, time taken to cover a particular distance decreases.