Ch-12 Basics of Geometry

Introduction to Geometry

1) The word geometry is derived from the Greek word 'geo' means Earth and 'metron' means measurement. Hence, Geometry means **measurement of Earth**.

2) Geometry is used to measure different shapes and sizes such as circles, squares, cubes , triangles etc.

3) So any object which is present on Earth has a shape which is defined by geometry.

4) **Euclid**, a Greek mathematician has invented geometry. He is also known as the **"Father of Geometry".**

Basic Geometrical Terms

1) Point → (a) A point is an exact location in plane or space.

. P

    (b) It is represented by a dot (.) and denoted with a capital letter like point P

    (c) It has no length, no width and no height.

    (d) Example:- Location on a map , Centre of the dashboard
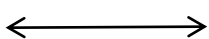
2) Line → (a) A line is a straight path of points that extends on and on in both the directions without ever ending.

P $\overleftrightarrow{PQ}$ Q
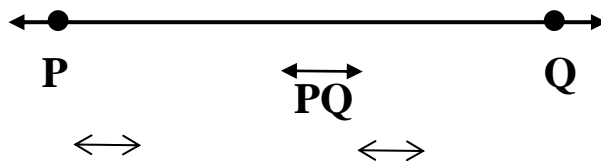
(b) It is represented as $\overleftrightarrow{PQ}$ (line PQ) or $\overleftrightarrow{QP}$ (line QP).

(c) The length of line cannot be measured.

(d) There are generally 3 types of lines;

Horizontal lines	**Vertical lines**	**Curved Lines** are of
goes straight.	goes straight up and down.	curve shape.

3) <u>Line Segment</u> ➔ (a) A part of a line is called a line segment. It has a fixed length.

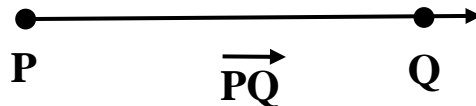$$\overline{CD} \text{ or } \overline{DC}$$

C — D
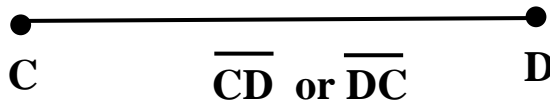
(b) The points at which the line segment begins and ends are called endpoints.

(c) Every line segment has 2 endpoints.

(d) It is represented as $\overline{CD}$ or $\overline{DC}$ (line segment CD or DC)

4) <u>Ray</u> ➔ (a) It is a straight path that has one endpoint and goes on and on in one direction.
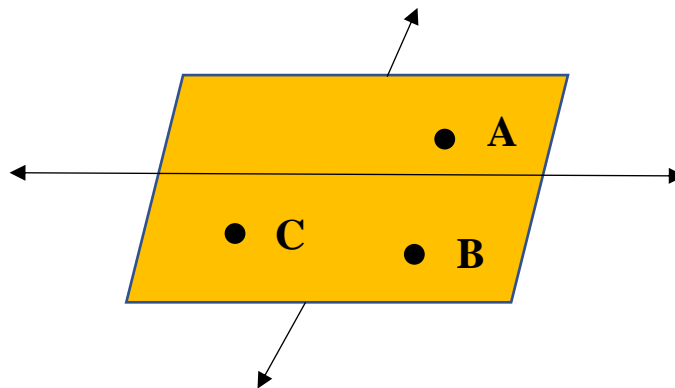
P — $\overrightarrow{PQ}$ — Q

(b) It is denoted by $\overrightarrow{PQ}$ (ray PQ) .

(c) Examples:- Rays from the sun , Rays of light from a torch.

(5) <u>Plane</u> ➔ (a) A plane is a flat surface that extends infinitely in all directions.

(b) It has no thickness.

• A

• C

• B

(c) Examples:- Surface of a paper , a table and a slanted rooftop.