






## Basic Geometrical Ideas

### Basic Geometrical Ideas ( Summary )

#### Points, Lines and Curves

- The point, the line segment, the line and the ray are the fundamental elements of geometry.
- A point represents a location or a position, and is dimensionless. It can be denoted by single capital letter of the English alphabet.

Term	Dimensions	Graphic	Symbol
Point	Zero		$\cdot A$
Line Segment	One		$\overline{AB}$
Ray	One		$\overrightarrow{AB}$
Line	One		$\overleftrightarrow{AB}$
Plane	Two		Plane $M$

- Line segments are defined as the shortest distance between two points.
- A line segment joining points L and M is denoted by
- A distance between the two end points of a line segment is the length of the line segment.
- A line is made up of an infinite number of points that extend indefinitely in both directions.
- A line containing points L and M is denoted by
- A plane is said to be a very thin flat surface that does not have any thickness and is limitless.
- A minimum of three points are required to represent a plane.
- Curves can be defined as figures that flow smoothly without a break.
- Curves that do not intersect themselves are called simple curves.
- The end points of open curves do not meet. While the endpoints of closed curve join to enclose an area.
- For a closed curve, you can identify three regions - the interior of the curve, the boundary of the curve and the exterior of the curve.

#### Angles, Polygons and Circles



- A curve that does not cross itself is called a simple curve.
- Angle is made up of two rays starting from one common end.
- Simple closed curves made up of only line segments are called polygons.
- A circle is a simple closed curve formed by a point moving at the same distance from a fixed point.
- Two rays join at a common point to form an angle.
- A polygon made up of three line segments is called a triangle.
- A polygon made up of four line segments is called a quadrilateral.
- A triangle has three vertices, three sides and three angles.
- A quadrilateral has four vertices, four sides and four angles.
- Sides that have a common vertex are called adjacent sides.
- A circle is formed by a point moving at the same distance from a fixed point.
- A circle is also a simple closed curve; however, it does not have any sides or angles.
- An arc is a part of the circumference of a circle.
- A chord is a line segment joining two points that lie on a circle.
- The part of a circle that is enclosed by a chord and an arc is called a segment of the circle.
- A chord passing through the centre of the circle is called its diameter.
- A diameter is the longest chord of a circle.
- A diameter of a circle divides the circle into two halves. Each half is called a semi-circle.
- A line segment that joins the centre of the circle and a point on the circle is called the radius of the circle.
- The radius of a circle is half of the diameter.
- A part of the circle that is enclosed by two radii and an arc is called a sector.