CHAPTER 4 BASIC GEOMETRICAL IDEAS

POINT

A point represents a position. It is merely a tiny dot.

LINE SEGMENT

Two points are joined by a line segment. A line segment is the shortest path between two points. A line segment between two points A and B is written as $\overline{AB}$.

LINE

A line segment that can be extended is called a line.

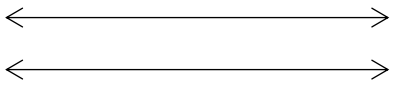
It is written simply as ℓ.

INTERSECTING LINES

If two lines meet at a point, they are called intersecting lines and the point is called intersecting point.

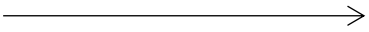
PARALLEL LINES

Lines which do not intersect are called parallel lines.



RAY

A line which extends only in one direction is called a ray. The point at which a ray starts is called its starting point.



CURVE

A curve is a line that is not necessarily straight.

A simple curve is a curve which does not cross itself.

An open curve is the one which starts at one point and ends at another point.

A closed curve is the one which starts and ends at the same point. In a closed curve, there are three positions:

(i) interior (inside the curve)

(ii) exterior (outside the curve)

(iii) boundary (on the curve)

The region of the curve is its interior and the boundary.

POLYGONS

A closed figure made up entirely of line segments is called a polygon.

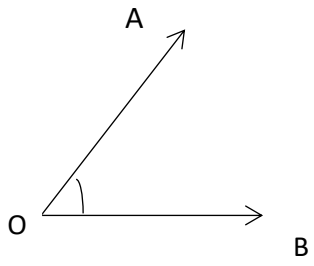
Side: The line segments that make up a polygon are called its sides.

Vertex: The point at which a pair of sides meets is called a vertex.

Adjacent sides: Two sides having a common vertex are called adjacent sides.

Adjacent vertices: These vertices are the end points of the same side of a polygon.

Angle: When two lines, line segments or rays intersect, the space between them is called an angle.



Here OA and OB are the arms/ sides of the angle.

The point O is the vertex.

The angle formed by OA and OB is denoted by $\angle$AOB.

The vertex is written in the middle.

The interior of any angle is the area bounded by the sides of the angle.

TRIANGLE

A polygon with three sides is called a triangle.

The line segments which intersect to form a triangle are called the sides of the triangle.

The points at which the sides of the triangle intersect are called the vertices of the triangle.

QUADRILATERAL

A polygon which has 4 sides is called a quadrilateral. It has 4 angles.

CIRCLE

A circle is a simple closed curve which has equal distance from a point called its centre. Every point on the circle is equidistant from the centre.

A line segment that joins two points on a circle is called a chord.

A chord that passes from the centre of the circle is called the diameter of the circle.

The line segment that joins the centre to a point on the circle is called the radius. The length of the radius is half of the length of the diameter.

An arc is simply a part of the circle.

The area enclosed by an arc and a chord Is called a segment of the circle.

The circumference of a circle is the distance around it.

A semi-circle is half of a circle.