
CHAPTER – 4
BASIC GEOMETRICAL IDEAS

- A point determines a location. It is usually denoted by a capital letter.
 - A line segment corresponds to the shortest distance between two points. The line segment joining points A and B is denoted by \overline{AB} . \overline{AB} and \overline{BA} denote the same line segment.
 - A line is obtained when a line segment like \overline{AB} is extended on both sides indefinitely; it is denoted by \overline{AB} or sometimes by a single small letter like l.
 - Two distinct lines meeting at a point are called intersecting lines.
 - Two lines in a plane are said to be parallel if they do not meet.
 - A ray is a portion of line starting at a point and going in one direction endlessly.
 - Any drawing (straight or non-straight) done without lifting the pencil may be called a curve. In this sense, a line is also a curve.
 - A simple curve is one that does not cross itself.
 - A curve is said to be closed if its ends are joined; otherwise it is said to be open.
 - A polygon is a simple closed curve made up of line segments. Here,
 - (i) The line segments are the sides of the polygon.
 - (ii) Any two sides with a common end point are adjacent sides.
 - (iii) The meeting point of a pair of sides is called a vertex.
 - (iv) The end points of the same side are adjacent vertices.
 - (v) The join of any two non-adjacent vertices is a diagonal.
 - An angle is made up of two rays starting from a common end point.
 - Two rays OA \overline{OA} and \overline{OB} make $\angle AOB$ (or also called $\angle BOA$).
 - An angle leads to three divisions of a region:
 - On the angle, the interior of the angle and the exterior of the angle.
 - A triangle is a three-sided polygon.
 - A quadrilateral is a four-sided polygon. (It should be named cyclically). In any quadrilateral ABCD, \overline{AB} & \overline{DC} and \overline{AD} & \overline{BC} are pairs of opposite sides. $\angle A$ & $\angle C$ and $\angle B$ & $\angle D$ are pairs of opposite angles. $\angle A$ is adjacent to $\angle B$ & $\angle D$; similar relations exist for other three angles.
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- A circle is the path of a point moving at the same distance from a fixed point. The fixed point is the centre, the fixed distance is the radius and the distance around the circle is the circumference.
 - A chord of a circle is a line segment joining any two points on the circle.
 - A diameter is a chord passing through the centre of the circle.
 - A sector is the region in the interior of a circle enclosed by an arc on one side and a pair of radii on the other two sides.
 - A segment of a circle is a region in the interior of the circle enclosed by an arc and a chord.
 - The diameter of a circle divides it into two semi-circles.
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