CIRCLES

- A circle is a closed figure in a plane and it is the collection of all those points in the plane, which are at a constant distance from a fixed point in the plane.
- The fixed point is called the **centre** of the circle and the constant distance is called the **radius** of the circle.
- There is one and only one circle passing through three given points.

Angle subtended by an arc of a circle

- The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.
- The angle subtended in a semicircle is a right angle.
- Angles in the same segment of a circle are equal.

Properties of cyclic quadrilateral

- The sum of either pair of opposite angles of a cyclic quadrilateral is 180°.
- If the sum of a pair of opposite angles of a quadrilateral is 180°, the quadrilateral is cyclic.

Properties of equal chords

- Equal chords of a circle subtend equal angles at the centre of the circle.
- If the angles subtended by the chords of a circle at the centre are equal, then the chords are equal.
- Equal chords of circle (or of congruent circles) are equidistant from the centre (or centres of respective circles).
- Chords equidistant from the centre of a circle (or from the respective centres of congruent circles) are equal in length.

Perpendicular from the centre to a chord

- The perpendicular drawn from the centre of a circle to a chord of the circle bisects the chord.
- The line drawn through the centre of a circle to bisect a chord is perpendicular to the chord.