

Ch-9 Circles

1. 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.
2. The fixed point is called the centre of the circle and the constant distance is called the **radius** of the circle.
3. There is one and only one circle passing through 3 given points.

Properties of equal chords

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

Angle Subtended by an Arc of a Circle

1. 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.
2. The angle subtended in a semicircle is a right angle.
3. Angles in the same segment of a circle are equal.

Properties of a Cyclic Quadrilateral

1. The sum of either pairs of opposite angles of a cyclic quadrilateral is 180° .
2. If the sum of a pair of opposite angles is 180° , then it is a cyclic quadrilateral.

Perpendicular from the Centre to a Chord

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