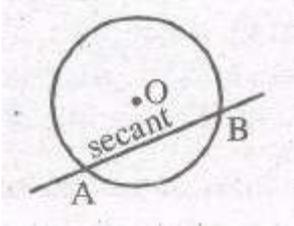# Maths Class 10 Notes for Circles

CIRCLE

The path of all points that are equidistant from a fixed point is called a circle.
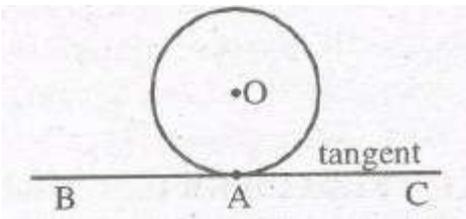
SECANT OF A CIRCLE

A line which intersects a circle in two distinct points is called a secant of the circle.

NOTE : A line can meet a circle at most in two distinct points.
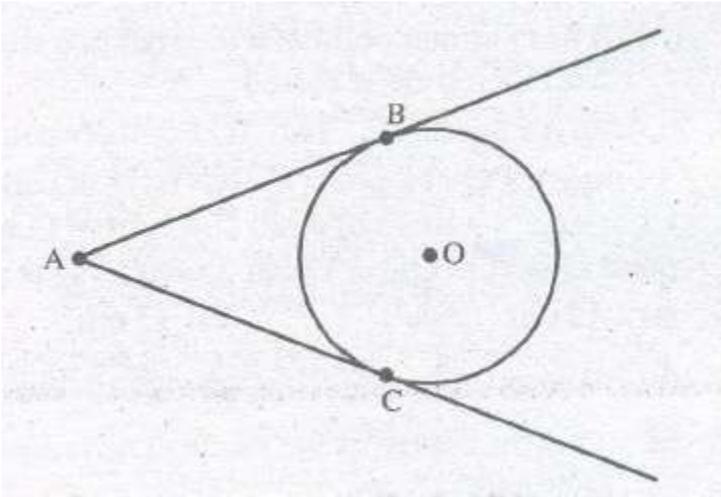
TANGENT TO A CIRCLE

A line which meets a circle exactly at one point is called a tangent to the circle. In adjoining figure, the line BAC is a tangent to the circle with centre O.

NOTE : The point where the line touches the circle is called its point of contact. In the figure 'A' is the point of contact.

REMARKS:

1. All points other than the point of contact of a tangent to a circle lie outside the circle.

2. No tangent can be drawn to a circle through a point inside the circle.

3. Not more than one tangent can be drawn to a circle at a point on the circumference of the circle.

4. Two tangents can be drawn to a circle from a point outside the circle.

AB and AC are two tangents drawn from the point A to the circle with centre 0.

NOTE : The distance AB (or AC) is called the length of tangent.

THEOREMS RELATED TO TANGENT TO A CIRCLE

THEOREM 1.

The tangent at any point of a circle is perpendicular to the radius through the point of contact. We have given a circle with centre 0 and a tangent XY to the circle at a point P then OP is perpendicular to XY.

THEOREM 2.

The lengths of tangents drawn from an external point to a circle are equal. We have a circle with centre 0, a point P lying outside the circle and two tangents PQ, PR on the circle from P then PQ = PR.