

# EDVISHAN

## Class 10 MATHS

### Circles

**Circle:** A circle is a collection of all points in a plane which are at a constant distance from a fixed point.

**Centre:** The fixed point is called the centre.

**Radius:** The constant distance from the centre is called the radius.

**Chord:** A line segment joining any two points on a circle is called a chord.

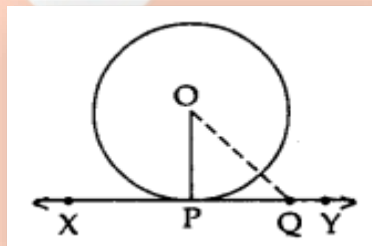
**Diameter:** A chord passing through the centre of the circle is called diameter. It is the longest chord.

**Tangent:** When a line meets the circle at one point or two coinciding points, the line is known as a tangent.

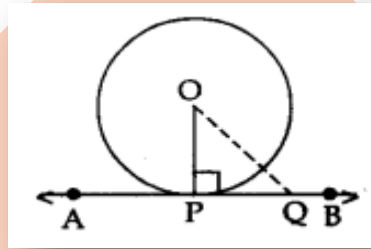
The tangent to a circle is perpendicular to the radius through the point of contact. The lengths of the two tangents from an external point to a circle are equal.

#### Properties of Tangent to Circle

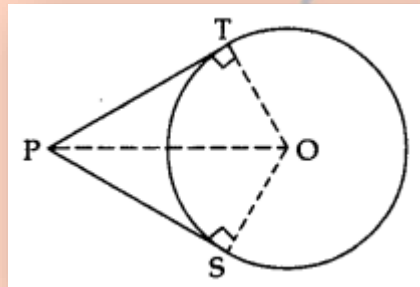
**Theorem 1:** The tangent at any point of a circle is perpendicular to the radius through the point of contact.



**Theorem 2:** A line drawn through the end point of a radius and perpendicular to it, is the tangent to the circle.



**Theorem 3:** The lengths of tangents drawn from an external point to a circle are equal.



If two tangents are drawn to a circle from an external point, then:

They subtend equal angles at the centre i.e.,  $\angle 1 = \angle 2$ .

They are equally inclined to the segment joining the centre to that point i.e.,  $\angle 3 = \angle 4$ .

$$\angle OAP = \angle OAQ$$

