

CHAPTER 10

Circles

Synopsis:

Different cases of position of a line with respect to a circle:

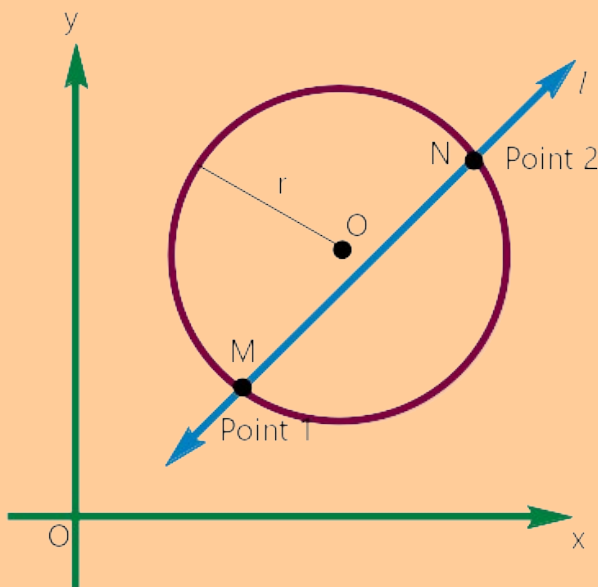
Consider a circle with centre 'O' and radius 'r' and a line 'l' in a plane. We have three possibilities, namely.

Case I:

The line meets the circle in two distinct points.

Secant:

A line, which intersects the circle at two distinct points, is called a secant.



In the given figure, the line ' l ' cuts the circle at the points M and N. So ' l ' is the secant of the circle.

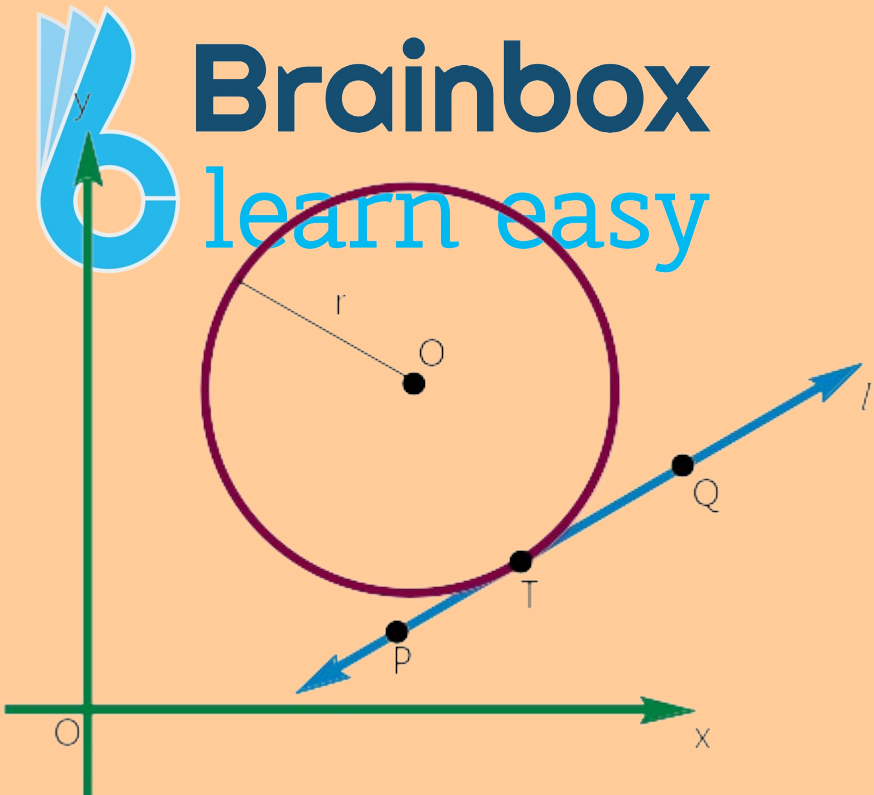
Case II:

The line meets the circle in one and only one point.

Tangent:

A line, which touches a circle at one point only, is called a tangent to the circle at that point.

In the given figure, PTQ is a tangent to the circle at point 'T'.



Note:

- The point at which the tangent touches the circle is called the point of contact.
- One and only one tangent can be drawn to a circle at a point.
- All the points on a tangent to a circle, the point of contact is nearest to the centre of the circle.

Case III:

The line ' l ' does not meet the circle.

i.e. ' l ' and the circle have no common points.

