

NCERT Solutions for Class 10 Maths Chapter 10 Circles Ex 10.1

1. How many tangents can a circle have?

Solution:

Tangent is a line that intersects the circle at one point.

Since, there are infinite number of points on circle. At every point, there is one tangent.

Hence, there are infinite number of tangents in a circle.

2. Fill in the blanks :

(i) A tangent to a circle intersects it in point (s).

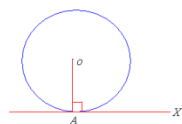
(ii) A line intersecting a circle in two points is called a .

(iii) A circle can have parallel tangents at the most.

(iv) The common point of a tangent to a circle and the circle is called.

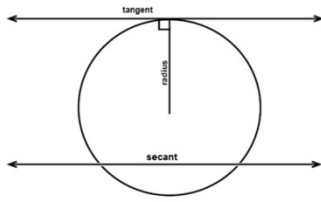
Solutions:

(i) A tangent to a circle intersects it in One point.

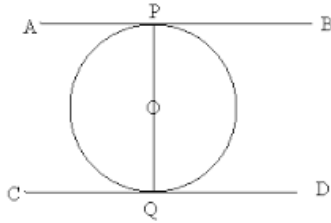


XY is a tangent which intersect the circle at A.

(ii) A line intersecting a circle in two points is called a Secant.

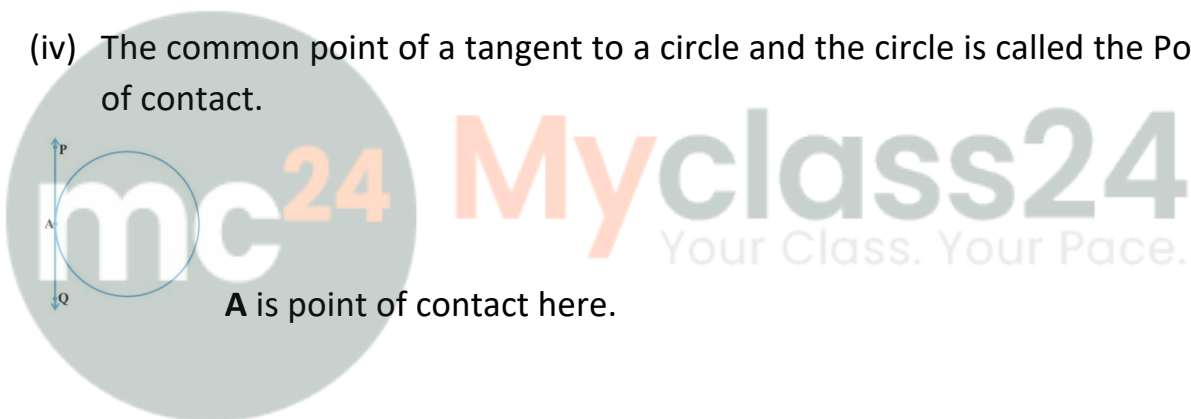


(iii) A circle can have Two parallel tangents at the most.



AB and CD are two parallel tangents

(iv) The common point of a tangent to a circle and the circle is called the Point of contact.



A is point of contact here.

3. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 12 cm. Length PQ is :

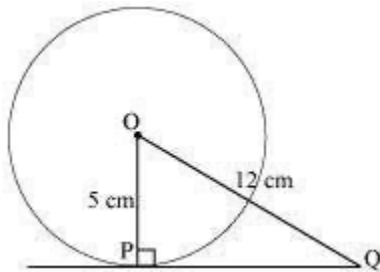
- A. 12 cm B. 13 cm
- C. 8.5 cm D. 119 cm.

Solution: answer is (D).

We know that the line drawn from the centre of the circle to the tangent is perpendicular to the tangent.

$OP \perp PQ$

By applying Pythagoras theorem in ΔOPQ ,



$$OP^2 + PQ^2 = OQ^2$$

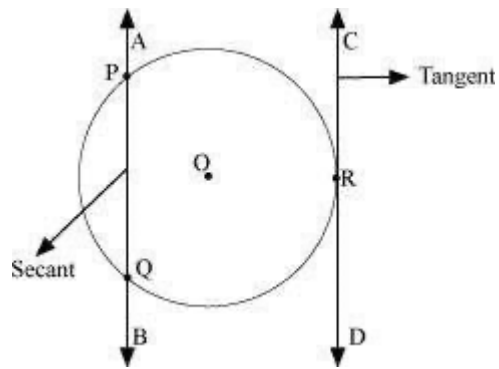
$$5^2 + PQ^2 = 12^2$$

$$PQ^2 = 144 - 25$$

$$PQ = \sqrt{119} \text{ cm.}$$

4. Draw a circle and two lines parallel to a given line such that one is a tangent and the other, a secant to the circle.

Solution:



AB and CD are two parallel lines.

AB intersects the circle at exactly two points, P and Q. Therefore, line AB is the secant of this circle.

CD intersects the circle at exactly one point, R, line CD is the tangent to the circle.