

NCERT Solutions For Class 10 Maths Chapter 10 Circles Exercise 10.1

Q1. How many tangents can a circle have?

Ans: A circle can have infinitely many tangents since there are infinitely many points on the circumference of the circle and at each point of it, it has a unique tangent.

Q2. 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
Ans: (i) A tangent to a circle intersects it in <u>one</u> point.
(ii) A line intersecting a circle in two points is called a <u>secan</u> t.
(iii) A circle can have \underline{two} parallel tangents at the most.
(iv) The common point of a tangent to a circle and the circle is called <u>point of contact</u> .

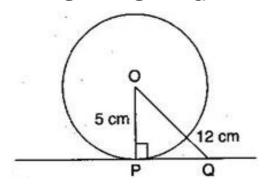
Q3. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 12 cm. Length PQ is:

- (A) 12 cm
- (B) 13 cm
- (C) 8.5 cm
- (D) $\sqrt{119}$ cm

Ans: (D) ∵ PQ is the tangent and OP is the radius through the point of contact.

 \therefore \angle OPQ = 90° [The tangent at any point of a circle is \bot to the radius through the point of contact]

... In right triangle OPQ,



 $OQ^2 = OP^2 + PQ^2$ [By Pythagoras theorem]

$$\Rightarrow (12)^2 = (5)^2 + PQ^2$$

$$\Rightarrow 144 = 25 + PQ^2$$

$$\Rightarrow PQ^2 = 144 - 25 = 119$$

$$\Rightarrow$$
 PQ = $\sqrt{119}$ cm

Q4. 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.

Ans:

