

CBSE Class-10 Mathematics

NCERT solution

Chapter - 10

Circles - Exercise 10.1

1. 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.

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 _____.

Ans. (i) A tangent to a circle intersects it in exactly one point.

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

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

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

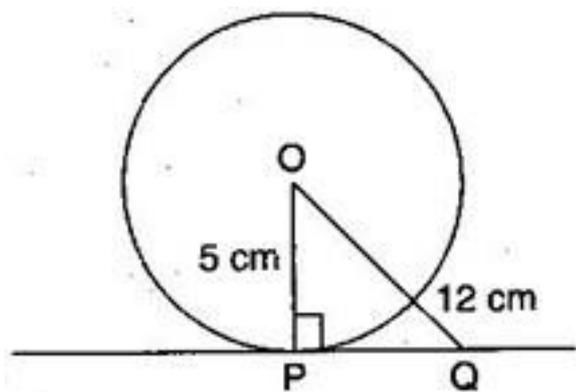
3. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 12 cm. Length PQ is:

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

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

∴ $\angle OPQ = 90^\circ$ [The tangent at any point of a circle is \perp to the radius through the point of contact]

∴ In right triangle OPQ,



$$OQ^2 = OP^2 + PQ^2 \text{ [By Pythagoras theorem]}$$

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

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

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

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

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.

