

**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.

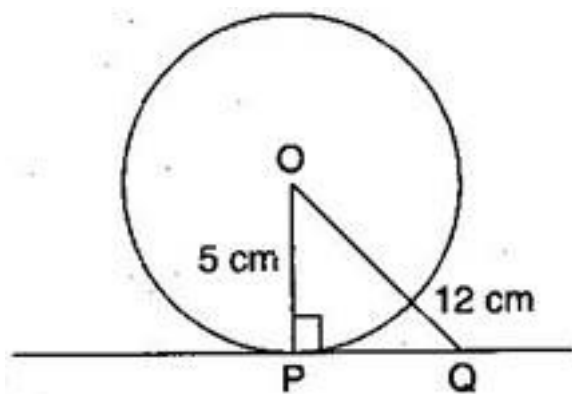
**3. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 12 cm. Length PQ is:**

(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.

