## EXERCISE: 10.1 (PAGE NO: 209)

**1. How many tangents can a circle have?**

**Answer:**

There can be **infinite** tangents to a circle. A circle is made up of infinite points which are at an equal distance from a point. Since there are infinite points on the circumference of a circle, infinite tangents can be drawn from them.

**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 …………**

**Answer:**

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

(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 the **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:**

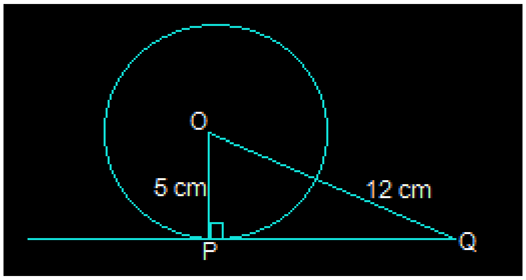
**(A) 12 cm**

**(B) 13 cm**

**(C) 8.5 cm**

**(D) √119 cm**

**Answer:**




In the above figure, the line that is drawn from the centre of the given circle to the tangent PQ is perpendicular to PQ.

And so, $OP \perp PQ$

Using Pythagoras' theorem in triangle $\Delta OPQ$, we get,

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

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

$PQ^2 = 144-25$

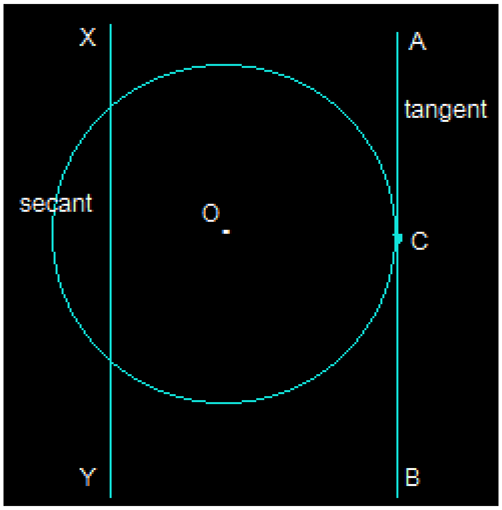
$PQ^2 = 119$

$PQ = \sqrt{119}$ cm

So, **option D,** i.e., $\sqrt{119}$ cm, is the length of PQ.

**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.**

**Answer:**




In the above figure, XY and AB are two parallel lines. Line segment AB is the tangent at point C, while line segment XY is the secant.