

EXERCISE 10.1**Question 1:**

How many tangents can a circle have?

Solution: There can be infinitely many tangents to a circle.

Question 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

Solution:

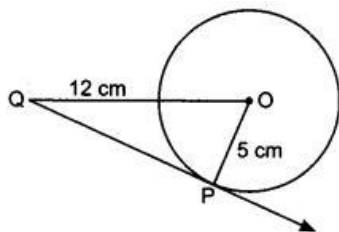
- (i) One
- (ii) Secant
- (iii) Two
- (iv) Point of contact.

Question 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

Solution:



Radius of the circle = 5 cm

OQ = 12 cm

$\angle OPQ = 90^\circ$

[The tangent to a circle is perpendicular to the radius through the point of contact]

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

$PQ^2 = 12^2 - 5^2 = 144 - 25 = 119$

$PQ = \sqrt{119}$ cm.

Hence correct option is (d).

Question 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:

Here, AB is the given line. CD is tangent to the given circle at the point M and parallel to AB, and EF is a secant parallel to AB.

