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 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.

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

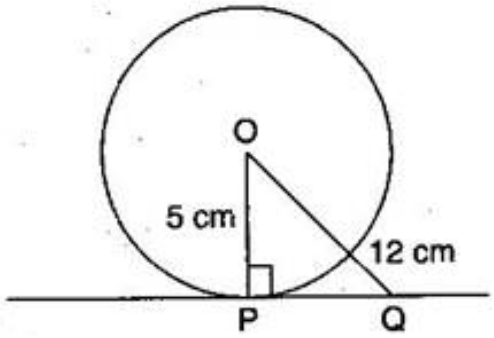
(C) 8.5 cm

(D) $\sqrt{119}$ cm

Ans: (D) $\because$ 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 $\perp$ to the radius through the point of contact]

$\therefore$ In right triangle OPQ,



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

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

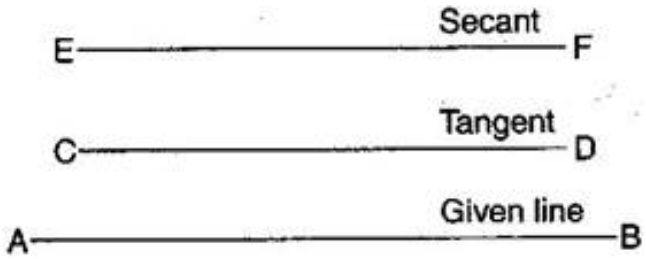
$\Rightarrow 144 = 25 + PQ^2$

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

$\Rightarrow$ 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:



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