

Chapter 10: Circles

NCERT · Class 10 · Maths

Exercise 10.1

Question 1

How many tangents can a circle have?

Solution

Ans: A circle can have an infinite number of tangents. A circle is made of infinite points and from each point, a tangent can be formed.

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

Ans: A tangent to a circle intersects it in exactly one point.

Ans: A line intersecting a circle in two points is called a secant.

Ans: A circle can have two parallel tangents at the most opposite to one another.

Ans: The common point of a tangent to a circle and the circle is called the Point of Contact.

Question 3

A tangent PQ at a point P of a circle of radius

$$5\text{cm}$$

meets a line through the centre O at a point Q so that

$$OQ = 12\text{cm}$$

. Length of PQ is :

A.

$$12$$

cm

B.

$$13$$

cm

C.

$$8.5$$

cm

D.

$$\sqrt{119}$$

Solution

Ans: According to the Pythagoras Theorem:

$$PQ = \sqrt{(OQ^2 - OP^2)}$$

$$OQ =$$

$$12$$

$$\text{cm, } OP =$$

$$5$$

cm

Because,

$$\begin{aligned}
 PQ &= \sqrt{(OQ^2 - OP^2)} \\
 &= \sqrt{(12^2 - 5^2)} \\
 &= \sqrt{144 - 25} \\
 &= \sqrt{119}
 \end{aligned}$$

cm.

Hence, (D) is the answer.

Question 4

Draw a circle and two lines parallel to a given line such that one is tangent and the other, a secant to the circle.

Solution

Ans: From the Given Figure below,

Let 'l' be the given line and a circle with centre O is drawn.

- A tangent to the circle from point B is drawn

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to line 'l'.

- CD is drawn

||

to line 'l' and is the secant.

