NCERT Solutions for Class 10 Maths Chapter 10 Exercise 10.1: The NCERT Solutions for Class 10 Maths Chapter 10 Exercise 10.1 focus on the topic of Circles. This exercise introduces students to important concepts such as tangents to a circle and the properties associated with them.

It includes problems that help students understand how to find the number of tangents from a point outside a circle, as well as the relationship between the radius and the tangent at a point of contact. With step-by-step solutions, this exercise builds a solid foundation for solving geometrical problems related to circles and enhances logical reasoning and analytical skills.

NCERT Solutions for Class 10 Maths Chapter 10 Exercise 10.1 Overview

Exercise 10.1 of **Chapter 10 Circles** focuses on understanding the fundamental properties of tangents to a circle and their applications. The exercise begins by introducing the concept of a tangent, defined as a straight line that touches the circle at exactly one point. Key concepts explored in this exercise include:

1. **Tangents and Radius Relationship**: The tangent to a circle is always perpendicular to the radius at the point of contact.
2. **Length of Tangents**: The exercise delves into problems where students calculate the length of tangents drawn from an external point to a circle.
3. **Point of Contact**: Understanding how to identify and work with the point where the tangent touches the circle is crucial.

NCERT Solutions for Class 10 Maths Chapter 10 Exercise 10.1 PDF

The NCERT Solutions for Class 10 Maths Chapter 10 Exercise 10.1 PDF provides comprehensive and step-by-step explanations for all the problems related to tangents and circles. With clear solutions and detailed diagrams, the PDF simplifies complex problems and ensures conceptual clarity. Access the PDF from the link below to enhance your preparation for exams and practice effectively.

NCERT Solutions for Class 10 Maths Chapter 10 Exercise 10.1 PDF

NCERT Solutions for Class 10 Maths Exercise 10.1 Chapter 10 Circles

Below is the NCERT Solutions for Class 10 Maths Exercise 10.1 Chapter 10 Circles

Solve the followings Questions.

1. How many tangents can a circle have?

Answer:

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.

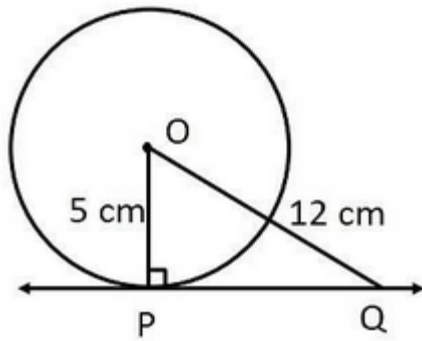(iv) The common point of a tangent to a circle and the circle is called _____.

Answer:

(i) one
(ii) secant
(iii) two
(iv) 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:

(D)

We know that the line drawn from the centre of the circle to the tangent is perpendicular to the tangent.

∴OP ⊥ PQ

By applying Pythagoras theorem in ΔOPQ,

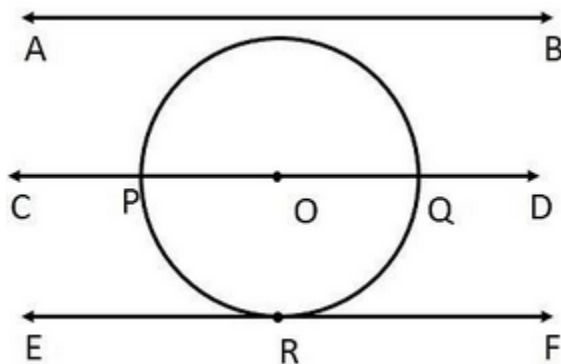$$\therefore OP^2 + PQ^2 = OQ^2$$

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

$$PQ^2 = 144 - 25$$

$$PQ = \sqrt{119}$$

Hence, the correct answer is $\sqrt{119}$ cm test.

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:

AB || CD || EF

AB,CD and EF are three parallel lines where EF is the tangent to the circle.

Here CD id secant(Intersecting circle at 2 points P and Q)

Benefits of Solving NCERT Solutions for Class 10 Maths Chapter 10 Exercise 10.1

- **Conceptual Clarity**: The solutions help students understand key concepts such as tangents, their properties, and their relationship with circles in a step-by-step manner.
- **Improved Problem-Solving Skills**: By practicing various types of problems, students develop logical reasoning and analytical abilities essential for geometry.
- **Time Management**: Solving these solutions regularly helps students improve their speed and accuracy, which is crucial during exams.
- **Enhanced Visualization**: Working with diagrams and proofs improves spatial understanding and enhances the ability to visualize geometrical concepts.
- **Strong Foundation**: This exercise lays the groundwork for understanding advanced geometrical concepts, making it easier to approach higher-level problems in future studies.