# Mathematics

## Practice Test Paper 5

### (Chapter 10: Circles)

### Class X | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

**General Instructions**

1. All 13 questions are compulsory. The paper has four sections: A, B, C and D.
2. Section A - 5 marks; Section B - 8 marks; Section C - 9 marks; Section D - 3 marks.
3. Choose one correct option in Section A. Show the necessary steps and reasoning in Sections B, C and D.
4. Give exact answers unless stated otherwise. Use of calculators is not allowed.

## SECTION A

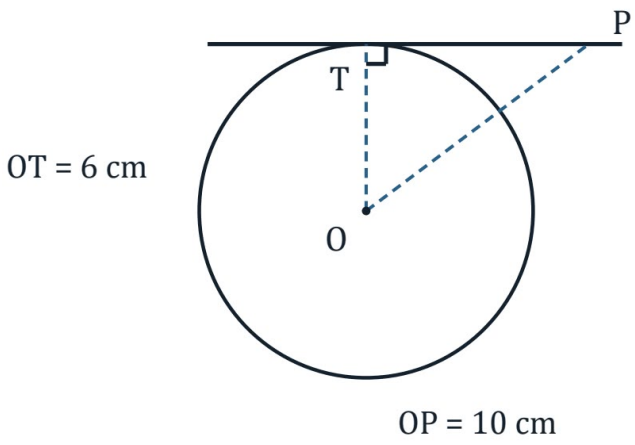
(5 questions × 1 mark = 5 marks)

**1.** A radius through a point of contact makes what angle with the tangent?

(A) 0° (B) 45°

(C) 90° (D) 180°

**2.** A circular design has centre O and radius OT = 6 cm. A tangent from P touches it at T. If OP = 10 cm, PT is:




(A) 8 cm (B) 4 cm

(C) 16 cm (D) 12 cm

**3.** A circle touches all sides of ABCD. If AB = 6 cm, BC = 9 cm and CD = 8 cm, AD is:

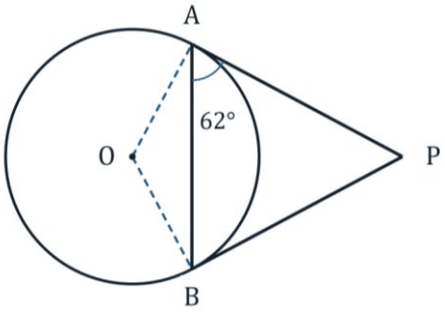
(A) 5 cm

(B) 7 cm

(C) 11 cm

(D) 23 cm

**4.** Tangents PA and PB meet at P, and AB is their chord of contact. If ∠PAB = 62°, then ∠APB is:




(A) 62° (B) 56°
(C) 124° (D) 28°

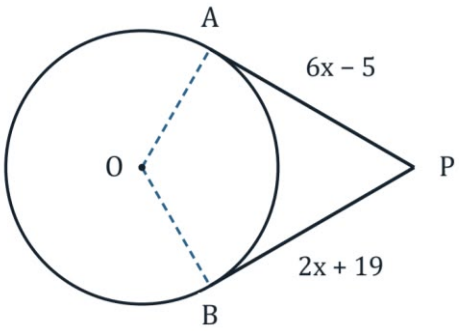
**5.** For two tangent segments from one external point, the ratio of their lengths is:

(A) 1 : 2 (B) 2 : 1
(C) 1 : 3 (D) 1 : 1

## SECTION B

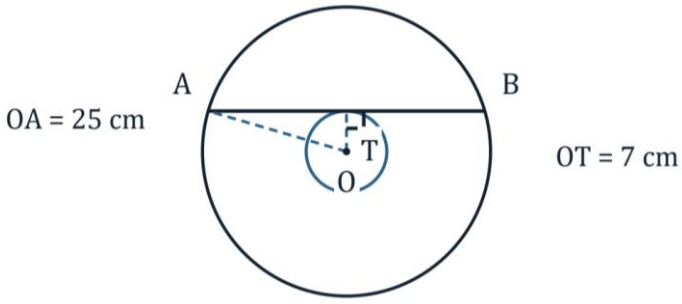
(4 questions × 2 marks = 8 marks)

**6.** PA and PB are tangents to the circle with centre O. Their lengths are (6x − 5) cm and (2x + 19) cm. Find x and each tangent length.




**7.** An external point is 15 cm from a circle's centre, and its tangent length is 12 cm. Find the radius and diameter.

**8.** A chord AB of the larger concentric circle just touches the smaller circle. If OA = 25 cm and OT = 7 cm, calculate AB.

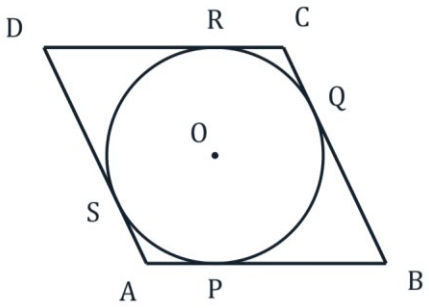



**9.** A tangent at A meets a line through the centre O at P. If ∠AOP = 48°, find ∠OPA and explain the property used.

## SECTION C

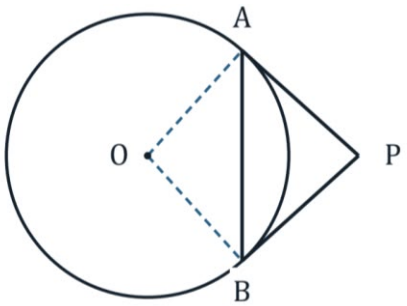
(3 questions × 3 marks = 9 marks)

**10.** The parallelogram ABCD circumscribes a circle as shown. Prove that it is a rhombus.




**11.** A circle touches BC of triangle ABC at D and touches AB and AC produced beyond B and C at E and F. Prove that AE equals half the perimeter of triangle ABC.

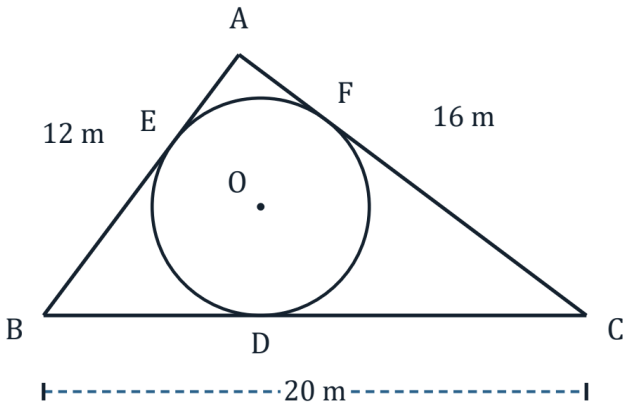
**12.** PA and PB are tangents from P to the circle with centre O. Prove that ∠APB = 2∠OAB.




## SECTION D

(Application Based Question - 3 marks)

**13.** A triangular garden ABC has sides AB = 12 m, BC = 20 m and CA = 16 m. A circular bed touches these sides at E, D and F, respectively.




(i) Find AE.

(ii) Find BD.

(iii) Find CF.