# Mathematics

## Practice Test Paper 7

### (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.

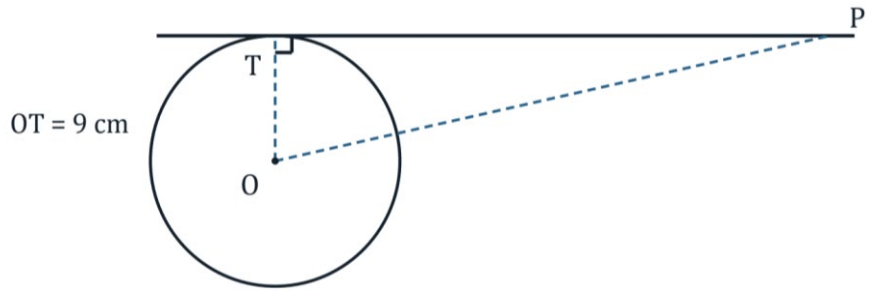
## SECTION A

(5 questions × 1 mark = 5 marks)

**1.** If tangents from P touch a circle at A and B, OP bisects:

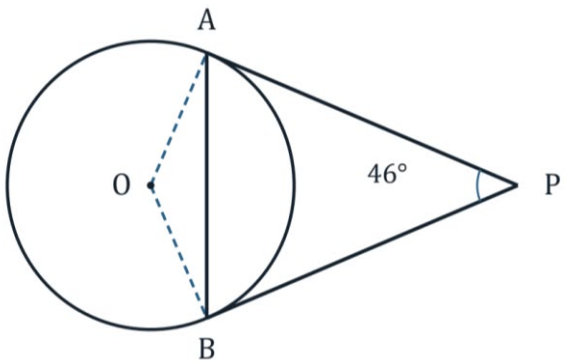
(A) radius OA
(B) tangent PA
(C) diameter AB
(D) angle APB

**2.** In the tangent construction shown, OT = 9 cm and PT = 40 cm. The distance of P from the centre is:




(A) 49 cm
(B) 31 cm
(C) 41 cm
(D) $\sqrt{1519}$ cm

**3.** In the diagram, PA and PB are tangents and ∠APB = 46°. The angle ∠OAB is:




(A) 67°
(B) 46°
(C) 134°
(D) 23°

**4.** Which statement is false?

(A) A tangent meets a circle once.

(B) A tangent passes through the centre.

(C) A radius is perpendicular to its tangent.

(D) External tangent segments are equal.

**5.** A circle has radius 4.5 cm. The distance between two parallel tangents is:

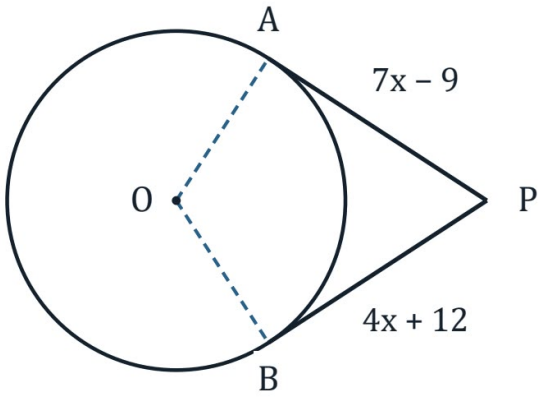
(A) 4.5 cm (B) 18 cm

(C) 9 cm (D) 2.25 cm

## SECTION B

(4 questions × 2 marks = 8 marks)

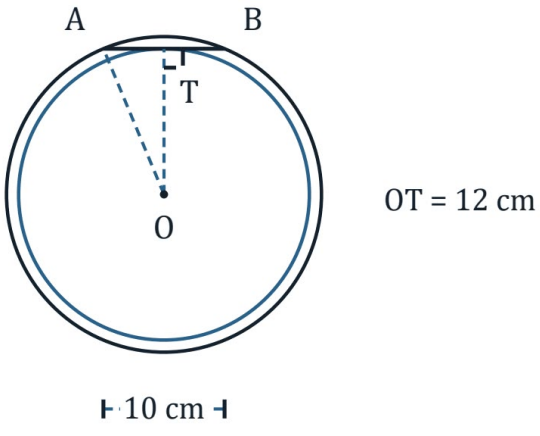
**6.** PA and PB are tangents to the circle with centre O. Their lengths are (7x − 9) cm and (4x + 12) cm. Find x and each tangent length.




**7.** A circle touches all four sides of a quadrilateral whose consecutive sides are 11 cm, 14 cm, 17 cm and x cm. Find x and its perimeter.

**8.** A point moves along a fixed ray away from the centre of a circle. Explain why its tangent length increases once the point is outside the circle.

**9.** A 10 cm chord AB of the larger circle touches a concentric circle of radius 12 cm at T. Find the larger radius.

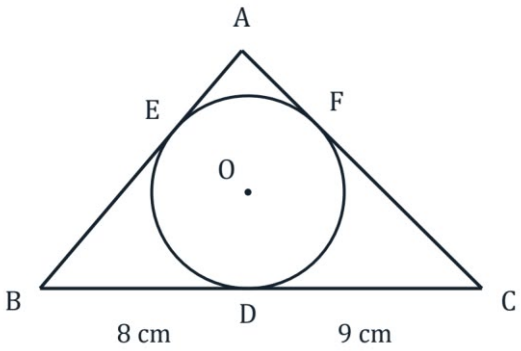


## SECTION C

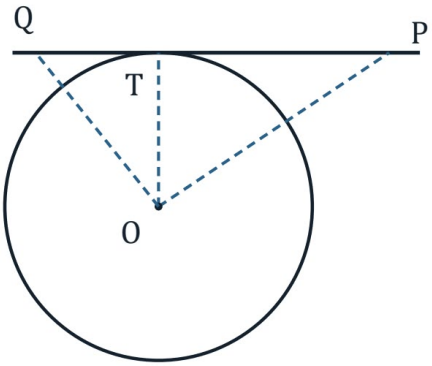
(3 questions × 3 marks = 9 marks)

**10.** Two concentric circles have outer radius 13 cm. From the same external point P, tangent lengths to the outer and inner circles are 9 cm and 15 cm. Find OP and the inner radius.

**11.** The incircle of triangle ABC touches BC at D, with BD = 8 cm and DC = 9 cm. The perimeter is 42 cm. Find AE, AB and AC.




**12.** PT is tangent at T to a circle with centre O. Prove OT ⊥ PT by comparing OT with OQ for any other point Q on the tangent line.




## SECTION D

(Application Based Question - 3 marks)

**13.** A circular ornament touches the sides of frame ABCD at P, Q, R and S. AB = 9 cm, BC = 10 cm, CD = 9 cm and AP = 3 cm.

(i) Find BP.

(ii) Find CQ.

(iii) Find DS.

