Mathematics

Practice Test Paper 9

(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. From P, two tangent segments have lengths (2x + 3) cm and 15 cm. The value of x is:

(A) 9 (B) 12

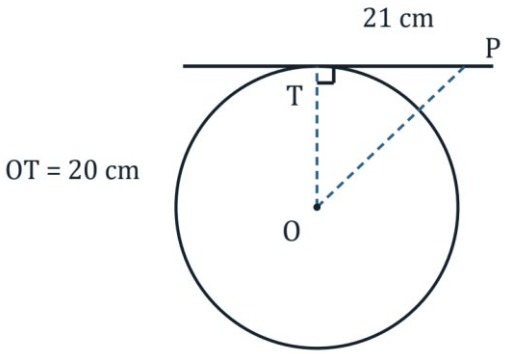
(C) 6 (D) 3

2. A circle of radius 3 cm touches a line. The distance from its centre to the line is:

(A) 3 cm (B) 6 cm

(C) 9 cm (D) 0 cm

3. A tangent PT is 21 cm long and the radius OT is 20 cm. The length OP is:



(A) 29 cm (B) 41 cm

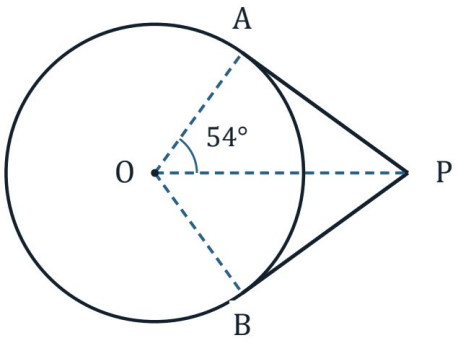
(C) 1 cm (D) $\sqrt{41}$ cm

4. If the angle between two tangents is acute, the corresponding minor central angle is:

(A) acute (B) right

(C) zero (D) obtuse

5. The tangents PA and PB are drawn from P, and ∠AOP = 54°. Find ∠APB.

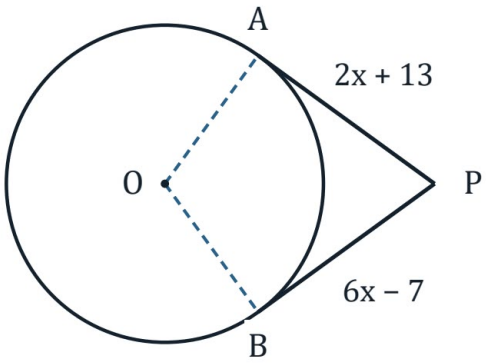


(A) 108° (B) 72°
(C) 54° (D) 36°

SECTION B

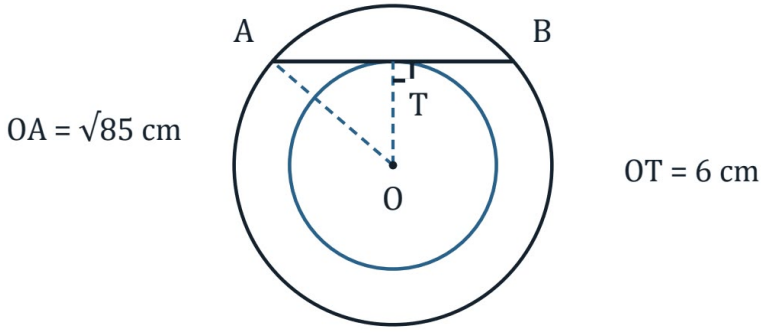
(4 questions × 2 marks = 8 marks)

6. PA and PB are tangents to the circle with centre O. Their lengths are (2x + 13) cm and (6x − 7) cm. Find x and each tangent length.



7. A tangent at A and a tangent at B meet at P. Explain why the quadrilateral OAPB is cyclic, where O is the centre.

8. A chord AB touches the inner of two concentric circles. The radii are $\sqrt{85}$ cm and 6 cm. Find AT and TB.

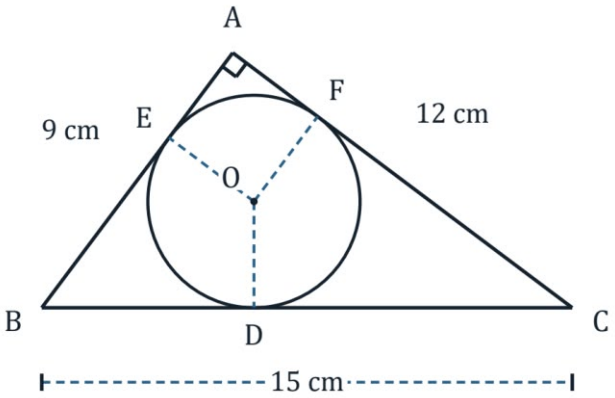


9. A circle touches sides AB and AC of a triangle at E and F. If AB = 13 cm, AE = 5 cm and AC = 11 cm, find BE and CF.

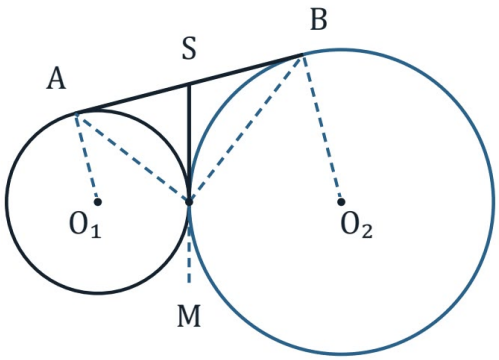
SECTION C

(3 questions × 3 marks = 9 marks)

10. Triangle ABC is right-angled at A, with AB = 9 cm, AC = 12 cm and BC = 15 cm. Its incircle touches the sides at E, D and F. Find the radius, explaining why AE equals it.



11. Two circles touch externally at M. Their common tangent touches them at A and B. The tangent at M meets AB at S. Prove that S is the midpoint of AB and ∠AMB = 90°.

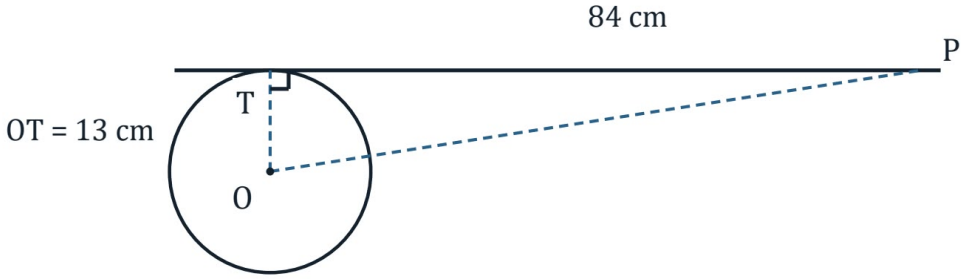


12. Tangents PA and PB to a circle of radius r have length $r\sqrt{3}$ each. Show that OP = 2r and ∠APB = 60°.

SECTION D

(Application Based Question - 3 marks)

13. A cable PT of length 84 cm touches a circular wheel at T. The wheel has centre O and radius 13 cm.



(i) Find OP.

(ii) Find the shortest distance from P to the wheel's boundary.

(iii) State the other tangent length from P.