Mathematics

Practice Test Paper 6

(Chapter 10: Circles)

Class X | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

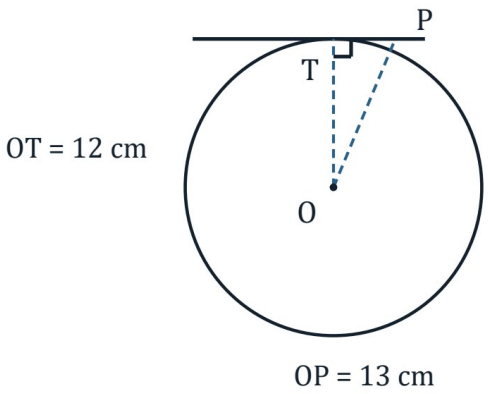
General Instructions

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 point P is 13 cm from the centre of a circle of radius 12 cm. Its tangent segment PT has length:



(A) 1 cm
(B) 5 cm
(C) 25 cm
(D) $\sqrt{313}$ cm

2. If a circle touches all four sides of a parallelogram, the parallelogram must be a:

(A) rectangle only
(B) rhombus
(C) trapezium only
(D) cyclic quadrilateral only

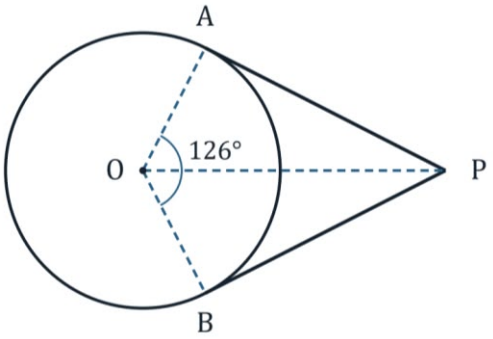
3. A tangent segment from P is 18 cm. The other tangent segment from P has length:

(A) 9 cm
(B) 36 cm
(C) 18 cm
(D) cannot be determined

4. If AB is a diameter, the tangents at A and B are:

(A) parallel
(B) perpendicular
(C) the same line
(D) intersecting at O

5. PA and PB are tangents to a circle with centre O. The marked central angle is 126°. The angle ∠OPA is:



(A) 54° (B) 63°

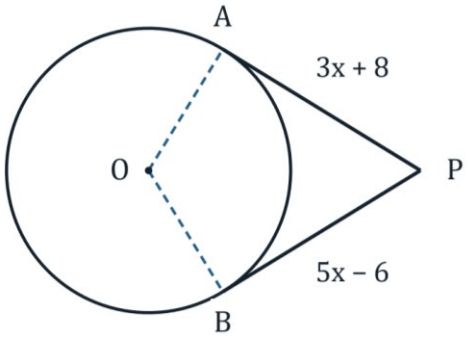
(C) 27° (D) 36°

SECTION B

(4 questions × 2 marks = 8 marks)

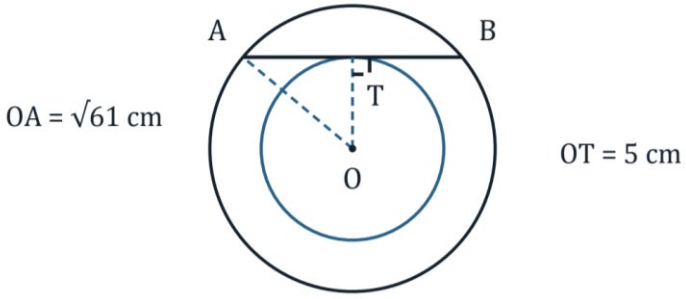
6. A student says that two tangents drawn from any two different external points must have equal lengths. Is this correct? Give a numerical counterexample for a circle of radius 3 cm.

7. PA and PB are tangents to the circle with centre O. Their lengths are (3x + 8) cm and (5x − 6) cm. Find x and each tangent length.



8. The angle between two tangents to a circle is 104°. Find the minor angle between the contact radii and the angle each tangent makes with the line joining their intersection to the centre.

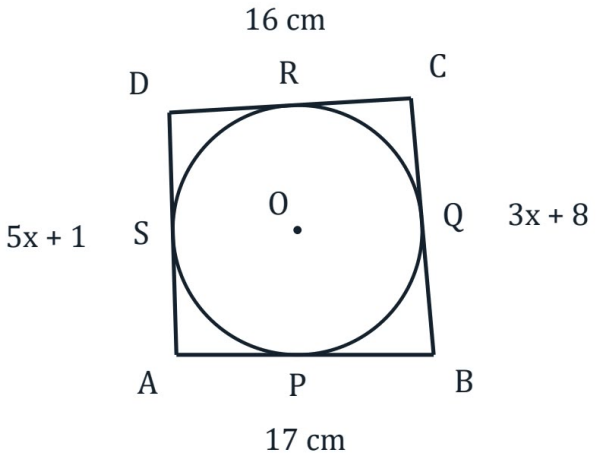
9. AB is tangent to the inner concentric circle at T. The radii are $\sqrt{61}$ cm and 5 cm. Find the length AB.



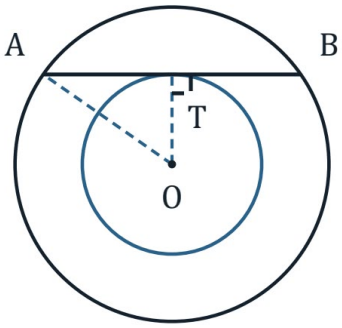
SECTION C

(3 questions × 3 marks = 9 marks)

10. ABCD circumscribes a circle. AB = 17 cm, CD = 16 cm, BC = (3x + 8) cm and DA = (5x + 1) cm. Find x, BC and DA, then obtain the perimeter.



11. AB is a chord of the larger of two concentric circles and touches the smaller at T. Prove that AT = TB.



12. An external point is 4 cm farther from the centre than the circle's radius. Its tangent length is 8 cm. Find the radius and centre-to-point distance.

SECTION D

(Application Based Question - 3 marks)

13. A circular pulley touches two parallel rails at U and V, 18 cm apart. A third tangent AB at T meets the rails as shown; OT is parallel to the rails.

(i) Find the radius.

(ii) Find AB.

(iii) Find ∠AOB.

