Mathematics

Practice Test Paper 7

(Chapter 11: Areas Related to 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. Use $\pi = 22/7$ unless stated otherwise. Use of calculators is not allowed.

SECTION A

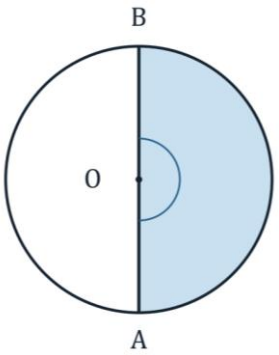
(5 questions × 1 mark = 5 marks)

1. A circle is divided into five equal sectors. Each central angle measures:

(A) 60° (B) 90°

(C) 72° (D) 120°

2. A semicircular region has radius 3.5 cm, as shown.



Its area is:

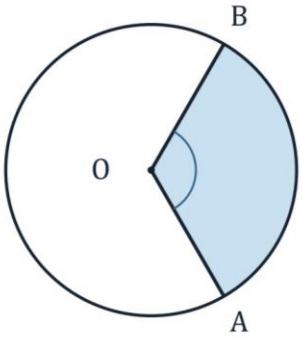
(A) 38.5 cm^2

(B) 11 cm^2

(C) 19.25 cm^2

(D) 9.625 cm^2

3. The shaded sector has central angle 120°. Its area is what fraction of the whole circular region?



$\angle AOB = 120°$

(A) $\frac{1}{3}$ (B) $\frac{2}{3}$

(C) $\frac{1}{6}$ (D) $\frac{1}{2}$

4. For sectors with equal angles, radii in the ratio 2 : 5 give areas in the ratio:

(A) 2 : 5 (B) 5 : 2

(C) 8 : 125 (D) 4 : 25

5. The area of a major segment is obtained by subtracting the minor segment area from the:

(A) circle area

(B) triangle area

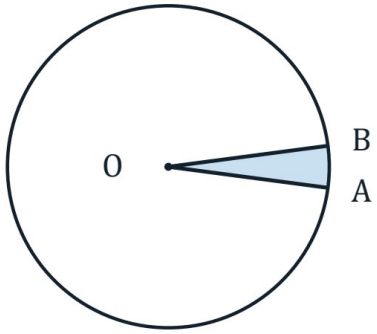
(C) minor sector area

(D) arc length

SECTION B

(4 questions × 2 marks = 8 marks)

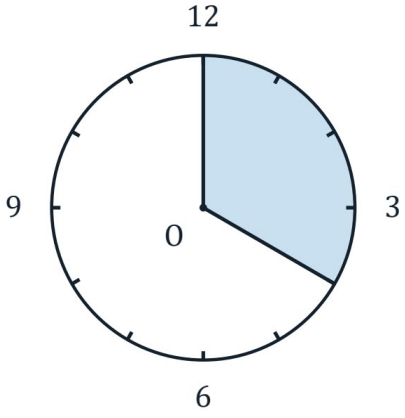
6. The area of sector OAB is 54π cm^2 and its radius is 36 cm. Find the length of arc AB in terms of π.



7. A circular fan opens through 210° and has radius 12 cm. Find its arc length and exact area in terms of π.

8. A 30° sector of radius 6 cm and a sector of radius 3 cm have equal areas. Find the angle of the smaller-radius sector.

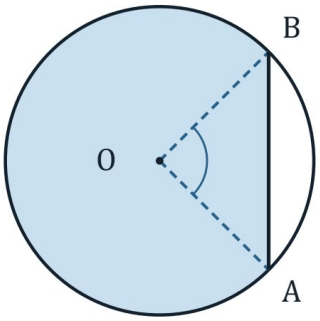
9. The minute hand in the diagram is 10.5 cm long. Find the area swept in 20 minutes and the distance travelled by its tip.



SECTION C

(3 questions × 3 marks = 9 marks)

10. The circle has radius 8 cm and ∠AOB = 90°. Find the exact area of the shaded major segment in terms of π, and find chord AB.



∠AOB = 90°

OA = 8 cm

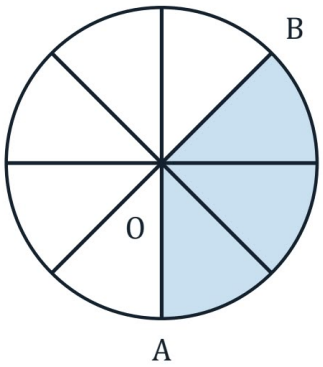
11. Two non-overlapping wiper blades, each 21 cm long, sweep through 90°. Find the total area cleaned and the combined distance travelled by their outer tips in one sweep.

12. A sector of radius 14 cm has a curved edge 33 cm long. Find its angle, area and the cost of covering it at ₹2 per cm^2.

SECTION D

(Application Based Question - 3 marks)

13. A circular display of radius 28 cm has eight equal panels. Three adjacent panels are shaded for decoration.



(i) Find the angle of one panel.

(ii) Find the total shaded area.

(iii) Find its outer arc length.