Mathematics

Practice Test Paper 9

(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 sector has the same numerical values for area in cm^2 and arc length in cm. Its radius is:

(A) 2 cm (B) 1 cm

(C) 4 cm (D) π cm

2. A sector's angle stays fixed while its radius increases by 50%. Its area increases by:

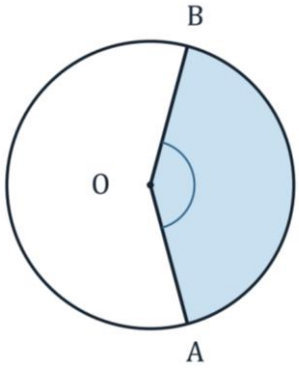
(A) 50%

(B) 125%

(C) 100%

(D) 225%

3. In the sector shown, OA = 12 cm and ∠AOB = 150°. The arc AB has length:



(A) $\frac{220}{7}$ cm (B) $\frac{110}{7}$ cm

(C) 60 cm (D) $\frac{440}{7}$ cm

4. For two sectors with equal arc lengths and radii 3 cm and 8 cm, their areas are in the ratio:

(A) 9 : 64 (B) 8 : 3

(C) 3 : 8 (D) 64 : 9

5. Two quadrants have radii 7 cm and 14 cm. The ratio of their areas, smaller to larger, is:



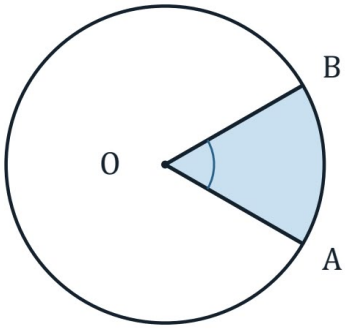
(A) 1 : 2 (B) 2 : 1

(C) 1 : 4 (D) 4 : 1

SECTION B

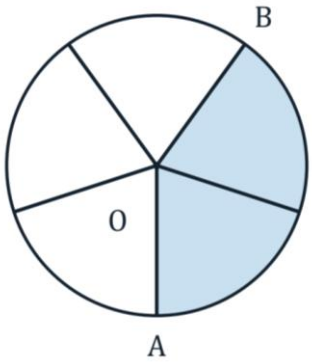
(4 questions × 2 marks = 8 marks)

6. OAB is a sector of radius 10.5 cm with central angle 60°. Find its arc length and complete perimeter.



7. A sector of angle 80° has area 44 cm^2. Find the area of a 140° sector of the same circle.

8. A round badge of radius 10 cm is divided into five equal sectors. Two adjacent sectors are shaded. Using π = 3.14, find their combined angle and area.



9. A sector of radius 5 cm has arc length 6 cm. Another sector has the same arc length and radius 8 cm. Find the difference in their areas.

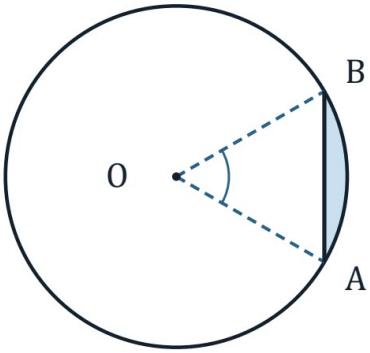
SECTION C

(3 questions × 3 marks = 9 marks)

10. A sprinkler waters a sector of angle 150° and radius 14 m. Find the watered area, the curved boundary length and the total boundary length.

11. A sector's radius is doubled and its angle is reduced to one-third of its original value. Find the ratios of new to original arc length, area and perimeter if the original angle is 90° and radius 7 cm.

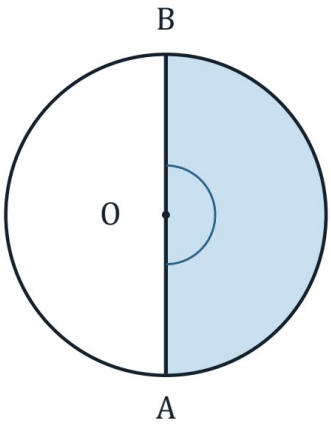
12. A circle of radius 18 cm has a chord subtending 60° at O. Find the exact area and perimeter of its minor segment in terms of π and $\sqrt{3}$.



SECTION D

(Application Based Question - 3 marks)

13. A stained-glass semicircular panel has radius 10 cm. The whole boundary is framed at ₹5 per cm. Use π = 3.14.



(i) Find the panel area.

(ii) Find the frame length.

(iii) Find the framing cost.