Mathematics

Practice Test Paper 3

(Chapter 11: Areas Related to Circles)

Class X | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

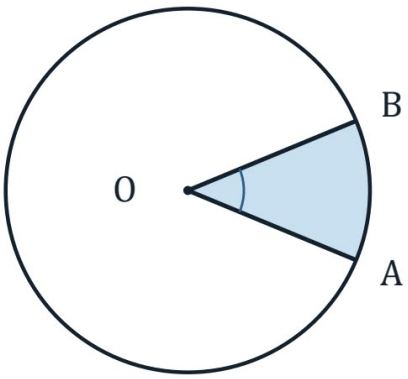
General Instructions

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. The minor arc AB subtends 45° at O in a circle of radius 14 cm. Its length is:



(A) 7 cm
(B) 22 cm
(C) 11 cm
(D) 44 cm

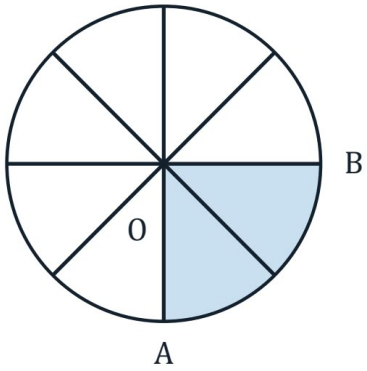
2. At a fixed radius, tripling a sector angle multiplies its arc length by:

(A) 9
(B) 1.5
(C) 3
(D) 6

3. How many sectors of angle 30° exactly fill a circle?

(A) 6
(B) 8
(C) 10
(D) 12

4. A circle is divided into eight equal sectors, and two adjacent sectors are shaded. What fraction of the circle is shaded?



(A) $\frac{1}{4}$

(B) $\frac{1}{8}$

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

(D) $\frac{3}{4}$

5. A minor sector has angle 100°. The ratio of minor to major sector areas is:

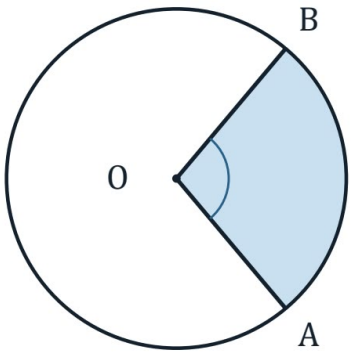
(A) 5 : 13 (B) 5 : 18

(C) 13 : 5 (D) 1 : 3

SECTION B

(4 questions × 2 marks = 8 marks)

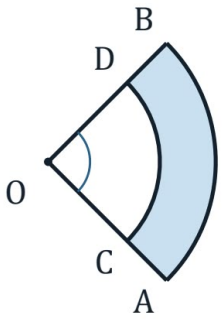
6. The shaded sector has angle 100° and area 70.65 cm^2. Using $\pi = 3.14$, find its radius.



7. A minute hand 6 cm long moves from 11:20 a.m. to 11:55 a.m. Find the swept angle and exact area in terms of π.

8. The areas of the minor and major sectors are in the ratio 2 : 7. Find their central angles.

9. The shaded band is the difference of two concentric quadrants with radii 9 cm and 6 cm. Find its exact area in terms of π.



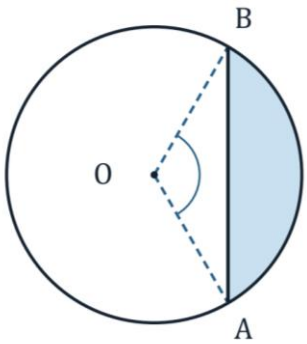
SECTION C

(3 questions × 3 marks = 9 marks)

10. An umbrella has eight equally spaced ribs. Treat it as a flat circle of radius 45 cm. Find the angle, arc length and area between two consecutive ribs.

11. A horse is tied at a corner of a square field of side 15 m with a 5 m rope. Find the grazing area and its increase if the rope becomes 10 m long. Use π = 3.14.

12. In a circle of radius 12 cm, chord AB subtends 120° at O. Find the shaded minor segment area. Use π = 3.14 and $\sqrt{3}$ = 1.73.



SECTION D

(Application Based Question - 3 marks)

13. A fan opens through 180° and has radius 14 cm. Its curved edge is decorated with lace, and its full surface is covered with paper.

(i) Find the lace length for the curved edge.

(ii) Find the area of paper.

(iii) Find the complete fan boundary length.

