Mathematics

Practice Test Paper 1

(Chapter 11: Areas Related to Circles)

Class X | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

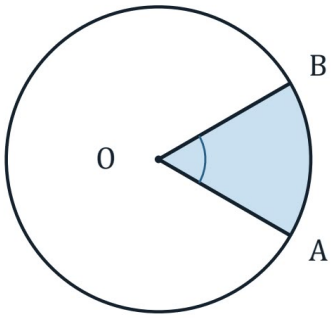
General Instructions

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. OAB is the shaded sector of radius 6 cm and central angle 60°. Its area is:

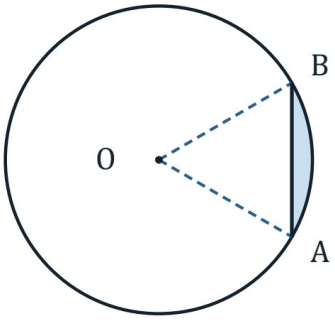


(A) $\frac{132}{7}$ cm²
(B) $\frac{66}{7}$ cm²
(C) 36 cm²
(D) 22 cm²

2. The region enclosed by two radii and the corresponding arc is a:

(A) sector
(B) segment
(C) chord
(D) circumference

3. The shaded region is bounded by chord AB and the minor arc AB. It is a:



(A) minor sector
(B) major sector
(C) minor segment
(D) triangle

4. A sector of angle θ degrees and radius r has area:

(A) $\frac{\theta}{180}\pi r^2$

(B) $\frac{\theta}{360}\pi r^2$

(C) $\frac{\theta}{360} \times 2\pi r$

(D) $\frac{360}{\theta}\pi r^2$

5. The minute hand of a clock turns through what angle in 10 minutes?

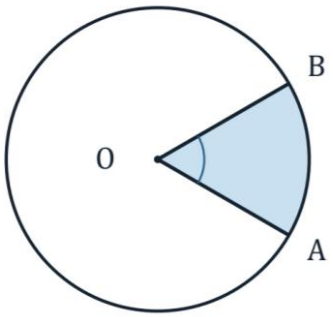
(A) 30° (B) 45°

(C) 60° (D) 90°

SECTION B

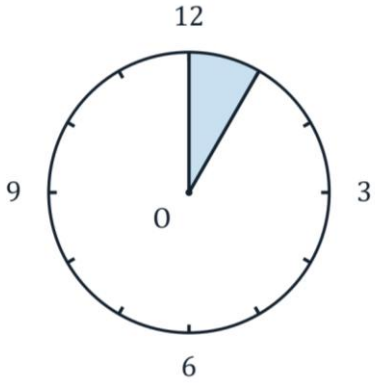
(4 questions × 2 marks = 8 marks)

6. For the sector shown, radius OA = 21 cm and ∠AOB = 60°. Find the arc length AB and the sector area.



7. Find the area of a quadrant of a circle whose circumference is 22 cm.

8. The minute hand of a clock is 14 cm long. The shaded region shows its sweep through 5 minutes. Find the swept angle and area.

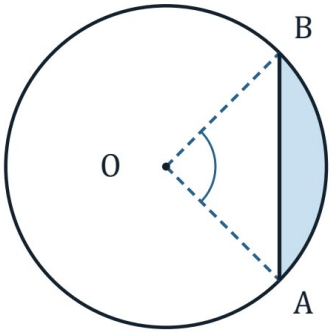


9. Two sectors in the same circle have angles 48° and 72°. The smaller sector has area 32 cm^2. Find the larger sector's area.

SECTION C

(3 questions × 3 marks = 9 marks)

10. A chord AB of a circle of radius 10 cm subtends 90° at O. Find the shaded minor segment area and the area of the corresponding major sector. Use π = 3.14.



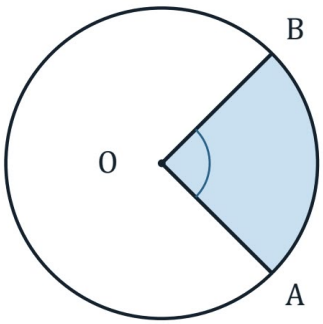
11. A circle has radius 4 cm. Find the areas of its 30° minor sector and the corresponding major sector. Use π = 3.14 and round both answers to two decimal places.

12. Derive the relation A = ½rl between sector area A, radius r and arc length l. Then find the area and perimeter when r = 9 cm and l = 8 cm.

SECTION D

(Application Based Question - 3 marks)

13. A sprinkler at O waters the shaded 90° sector of a garden up to a distance of 28 m. A border is to be laid around the entire watered region.



(i) Find the curved edge length.

(ii) Find the watered area.

(iii) Find the total border length.