Mathematics

Practice Test Paper 10

(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 angle of a major sector must be:

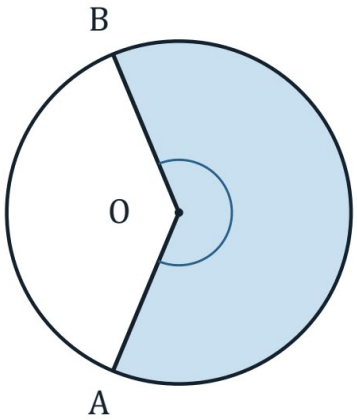
(A) less than 90°

(B) exactly 90°

(C) between 90° and 180°

(D) between 180° and 360°

2. The shaded major sector has radius 8 cm and angle 225°. Its exact area, in terms of π, is:



(A) 24π cm^2

(B) 40π cm^2

(C) 64π cm^2

(D) 80π cm^2

3. A chord passes through the centre. Each of the two segments it forms is a:

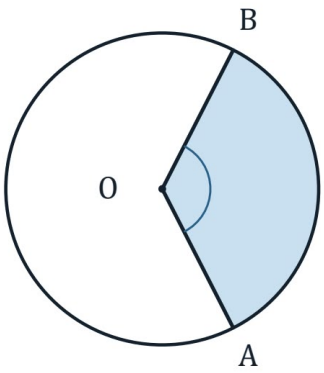
(A) semicircle

(B) quadrant

(C) minor sector of 60°

(D) triangle

4. The shaded sector occupies $\frac{7}{20}$ of the circle. Its marked central angle θ is:



(A) 108° (B) 140°
(C) 144° (D) 126°

5. A sector is one-twelfth of a circle. Its central angle is:

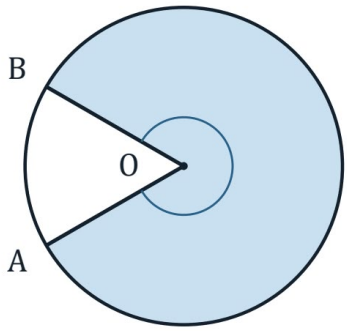
(A) 12° (B) 30°
(C) 60° (D) 120°

SECTION B

(4 questions × 2 marks = 8 marks)

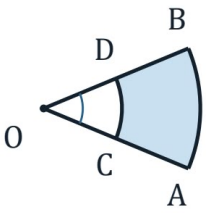
6. The minute hand of a clock is 7 cm long. Find the area swept in one minute as an exact fraction.

7. A shaded sector has radius 7 cm and angle 300°. Find its area and perimeter as exact fractions.



8. The area of a quadrant is 38.5 cm^2. Find the radius and its curved boundary length.

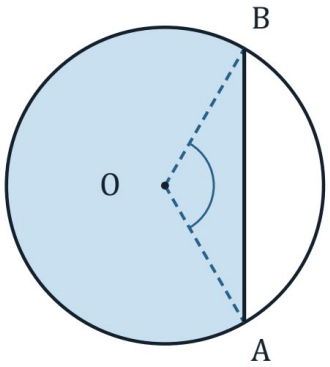
9. The shaded band lies between two concentric 45° sectors of radii 28 cm and 14 cm. Find its area.



SECTION C

(3 questions × 3 marks = 9 marks)

10. The radius is 6 cm and ∠AOB = 120°. Find the exact area of the shaded major segment in terms of π and $\sqrt{3}$.



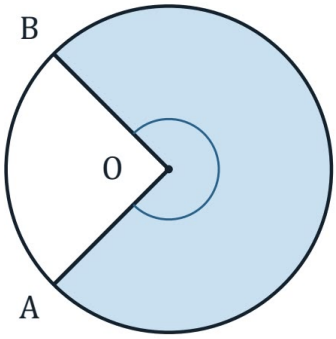
11. A 60° sector and a 150° sector have equal arc lengths. Their radii are 20 cm and r cm respectively. Find r and the ratio of the first area to the second area.

12. A sector of radius 10 cm has angle 108°. Another sector of radius 15 cm has the same area. Find the second angle and compare their arc lengths, giving exact values in terms of π.

SECTION D

(Application Based Question - 3 marks)

13. A circular flower bed has radius 7 m. The shaded 270° sector is planted with flowers and the remaining sector is left as a path.



(i) Find the planted area.

(ii) Find the path area.

(iii) Find the planted sector's outer arc length.