

Area of a Sector and Segment

Chapter 11: Areas Related to Circles · Topic 1

Key Concept

For example, a sector with radius 7cm and angle 90° has area $(90/360) \times (22/7) \times 7^2 = (1/4) \times 154 = 38.5 \text{ cm}^2$. To find a minor segment's area (the smaller region cut off by a chord), calculate the sector's area first, then subtract the area of the triangle formed by the two radii and the chord, using either the standard triangle area formula or specific trigonometric formulas when angles are known.

Quick Revision Notes

- Sector area = $(\theta/360^\circ) \times \pi r^2$, where θ is the central angle.
- A segment is the region between a chord and its arc.
- Segment area = sector area - triangle area (formed by the two radii and the chord).
- Example: sector with radius 7cm, angle 90° , has area 38.5 cm^2 .

Practice Questions

- 1 Find the area of a sector with radius 7cm and angle 90° (use $\pi=22/7$).
- 2 Calculate the area of a sector with radius 14cm and angle 60° .
- 3 Explain the relationship between a sector's area and a segment's area.