

Circles

Chapter 17: Circles · Topic 1

Key Concept

The angle subtended by an arc at the centre is twice the angle subtended by the same arc at any point on the remaining part of the circle.

Angles in the same segment of a circle, subtended by the same arc, are equal to each other.

The angle in a semicircle is always a right angle (90°), a special case of the angle-arc relationship.

Opposite angles in a cyclic quadrilateral (one inscribed in a circle) are supplementary, adding up to 180° .

Quick Revision Notes

- Central angle = $2 \times$ inscribed angle (same arc).
- Angles in the same segment are equal.
- Angle in a semicircle is always 90° .
- This is a special case of the angle-arc rule.
- Cyclic quadrilateral opposite angles sum to 180° .
- These are key circle theorems.
- They help solve circle geometry problems.
- Practice builds theorem application skills.

Practice Questions

- 1 Verify the central-inscribed angle theorem with a diagram.
- 2 Find an angle in the same segment given one angle.
- 3 Verify that a semicircle angle is 90° .
- 4 Find a missing angle in a cyclic quadrilateral.
- 5 Solve a circle theorem problem.
- 6 Explain a circle theorem in your own words.