

Angle Subtended by an Arc

Chapter 9: Circles · Topic 2

Key Concept

A direct and useful consequence of this theorem is that angles in the same segment of a circle (subtended by the same arc, on the same side) are always equal to each other, since they are all exactly half of the same fixed central angle. Another important consequence: an angle inscribed in a semicircle (subtended by the diameter) is always exactly 90° , since the central angle for a diameter is 180° (a straight line), and half of 180° is 90° .

Quick Revision Notes

- The angle at the centre is twice the angle at the circumference, subtended by the same arc.
- Angles in the same segment (subtended by the same arc) are equal to each other.
- An angle inscribed in a semicircle (subtended by the diameter) is always 90° .
- This theorem connects central angles and circumference (inscribed) angles.

Practice Questions

- 1 If an arc subtends 80° at the centre, find the angle it subtends at the circumference.
- 2 Explain why an angle inscribed in a semicircle is always 90° .
- 3 State why angles in the same segment of a circle are always equal.