Circle theorem

Centre and Circumference Angles

Key idea

The **centre angle** is double the **circumference angle** on the same arc.

An angle in a **semicircle** is always $90°$.

Example

Centre angle $= 96°$

$\Rightarrow$ circumference angle $= 48°$

Same segment

Angles on the same arc, standing in the same segment, are always **equal** to each other.

Common mistake

Same-segment angles are **equal**, not double. Only the centre angle is double the circumference angle.

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Circle theorem

Tangents and Cyclic Quadrilaterals

Key idea

A **tangent** meets the radius at $90°$ at the point of contact.

Opposite angles in a **cyclic quadrilateral** sum to $180°$.

Example

One cyclic quadrilateral angle $= 113°$

$\Rightarrow$ opposite angle $= 180° - 113° = 67°$

Order of working

Spot the theorem the diagram shows, write it as an equation, then solve.

Common mistake

Don't confuse 'equal' with 'supplementary': same-segment angles are equal; cyclic-quad opposite angles add to $180°$.

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