

Activity 15 Angle in a semicircle

- $\angle CBD$ is always 90° .
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$$\angle AOC = 180^\circ$$

$$\angle ABC = 90^\circ$$

- Angle on a straight line is 180°
- Angle at the circumference is half the angle at the centre.

Activity 16 Angles subtended by the same arc

- $\angle CBD$ remains constant
- The supplementary angle is shown when B is in minor segment BOD.
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$$\text{Let } \angle ABC = a$$

$$\angle AOC = 2a$$

$$\angle ADC = a$$

- Angle at the centre theorem
- Converse of angle at the centre theorem

Activity 17 Opposite angles in a cyclic quadrilateral

- The opposite angles are supplementary
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$$\text{Let } \angle ABC = a$$

$$\angle AOC = 2a$$

$$\text{Reflex } \angle AOC = 360 - 2a$$

$$\angle ADC = 180^\circ - a$$

$$\therefore \angle ABC + \angle ADC = 180^\circ$$

Angle at the centre theorem

Angles at a point sum to 360°

Angle at the centre theorem (converse)