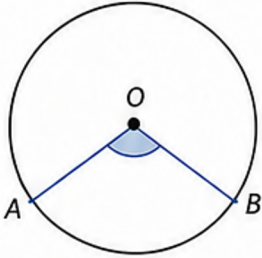


CIRCLE THEOREMS

REFERENCE CARDS



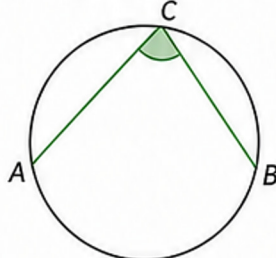
1 ANGLE AT THE CENTRE



The angle at the centre is twice the angle at the circumference on the same arc.

$$\angle A\hat{O}B = 2\angle ACB$$

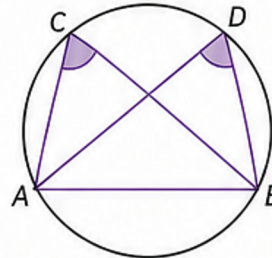
2 ANGLE AT THE CIRCUMFERENCE



The angle at the circumference is half the angle at the centre on the same arc.

$$\angle ACB = \frac{1}{2} \angle A\hat{O}B$$

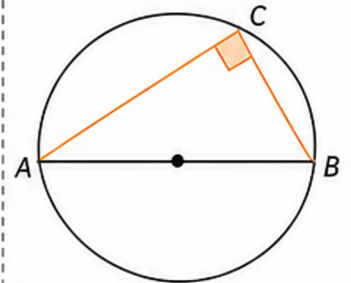
3 ANGLES IN THE SAME SEGMENT



Angles in the same segment are equal.

$$\angle ACB = \angle ADB$$

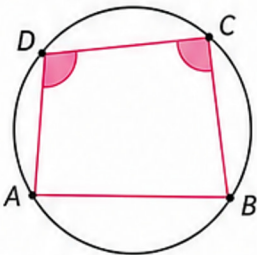
4 ANGLE IN A SEMICIRCLE



The angle in a semicircle is a right angle.

$$\angle ACB = 90^\circ$$

5 CYCLIC QUADRILATERAL

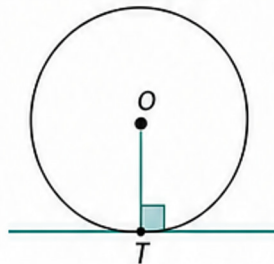


Opposite angles of a cyclic quadrilateral sum to 180° .

$$\angle A + \angle C = 180^\circ$$

$$\angle B + \angle D = 180^\circ$$

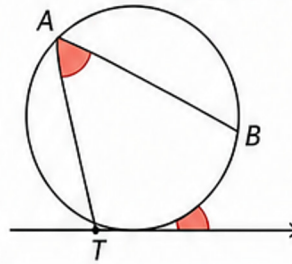
6 TANGENT-RADIUS THEOREM



The tangent at a point is perpendicular to the radius at the point of contact.

$$OT \perp \text{tangent at } T$$

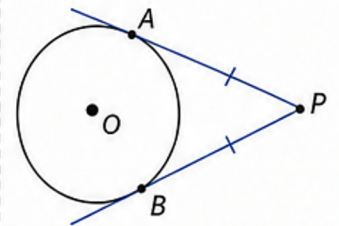
7 TANGENT-CHORD THEOREM



The angle between a tangent and a chord equals the angle in the alternate segment.

$$\angle ATB = \angle ACB$$

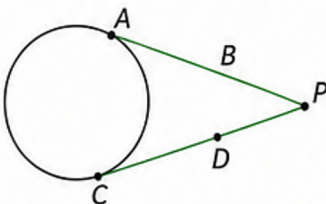
8 TWO TANGENTS FROM A POINT



Tangents drawn from the same external point are equal in length.

$$PA = PB$$

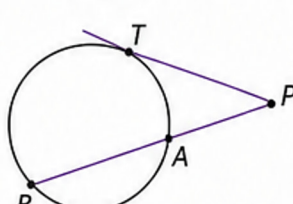
9 POWER OF A POINT (SECANT-SECANT)



For two secants from the same external point:

$$PA \times PB = PC \times PD$$

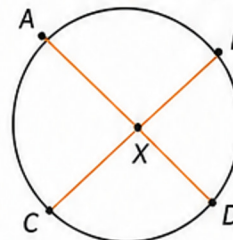
10 POWER OF A POINT (TANGENT-SECANT)



For a tangent and a secant from the same external point:

$$PT^2 = PA \times PB$$

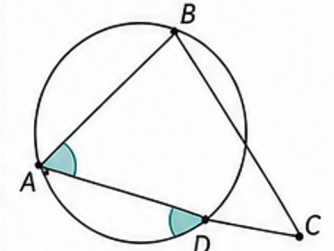
11 CHORDS INTERSECTING INSIDE A CIRCLE



When two chords intersect inside a circle:

$$AX \times XB = CX \times XD$$

12 CIRCUMFERENCE THEOREM (GENERAL)



Theorems 1–4 and 7 apply to any arc or segment of the circle.

Use the geometry to identify equal or related angles.