

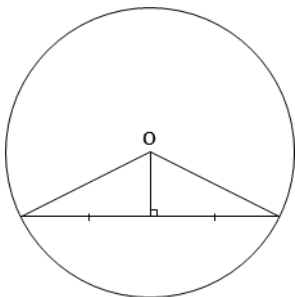
Circle Geometry

Things to Know

- **Subtend**: line extended or created
 - E.g. angle subtended by arc, line subtended to point P
- **Concentric Circles**: circle in a circle
- Don't forget **alternate segment** and **cyclic quadrilateral**

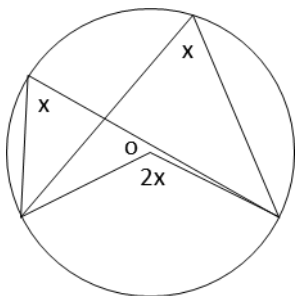
Theorems

- Don't memorise the words. Too many. Work out what to say instead!



Angle from centre of circle to midpoint of chord is **perpendicular** to the chord

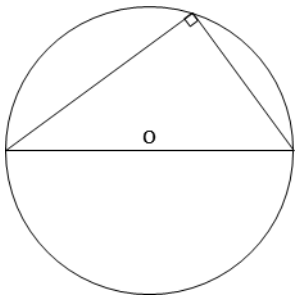
Line from centre of circle perpendicular to chord **bisects** the chord



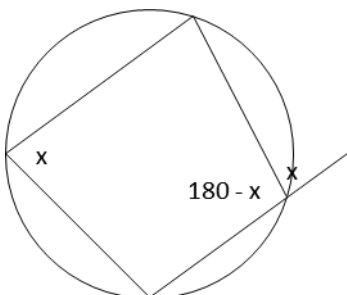
Angle at centre of circle is **double** the angle at circumference on same arc

Angles at circumference on same arc in the same segment **are equal**

Equal chords **subtend equal angles** at circumference and centre

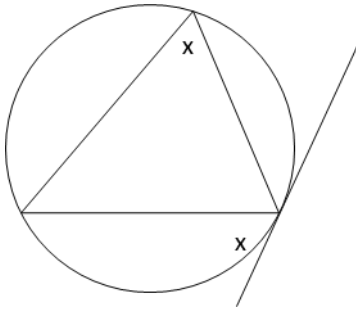


Angle in a semicircle is a **right angle**

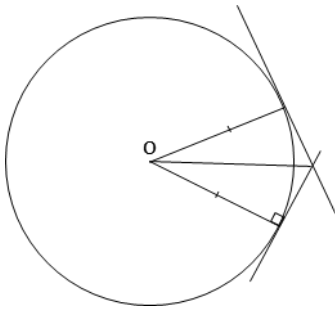


Opposite angles of cyclic quadrilateral are **supplementary (180°)**

Exterior angle of cyclic quadrilateral is **equal to** interior opposite angle

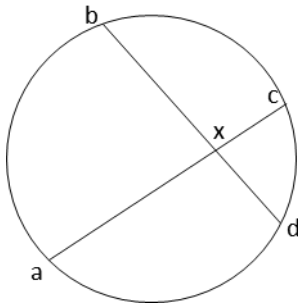


Angle between tangent and chord **equal to** angle in alternate segment



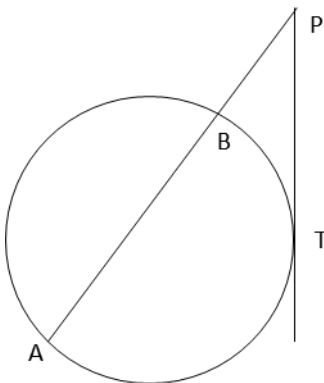
Angle between line from centre to circumference and tangent is a **right angle** (Basically, a chord moved to the end of circle)

Tangents drawn to a circle from an external point **are equal** in length



$$AX \times XC = BX \times XD$$

Product of intercepts of intersecting chords **are equal**



$$PT^2 = PA \times PB \text{ (Remember everything has 'P's in it)}$$

Square of length of tangent **equal to** product of intercepts of a secant drawn from external point

How do I answer the questions?

- Put in α 's. Write in every angle you can. Check you haven't missed **alternate segment**.