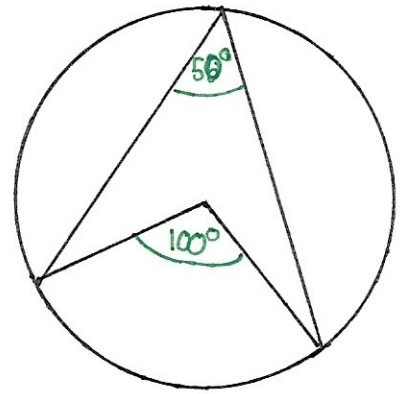
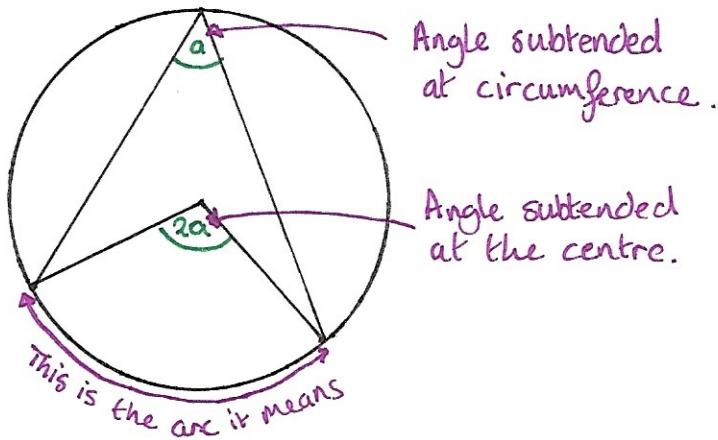


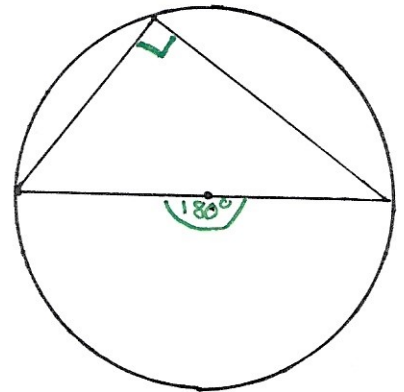
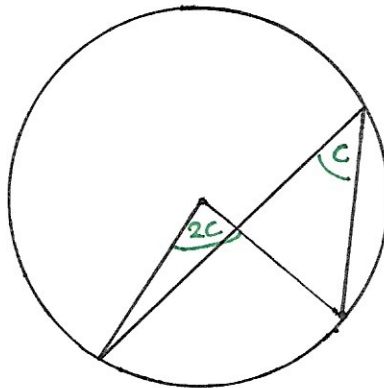
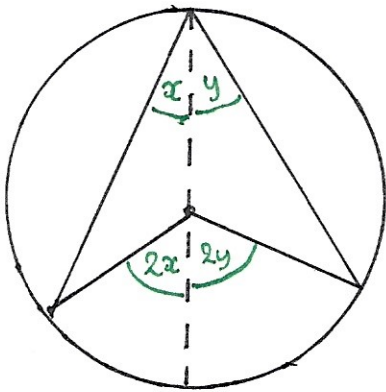
Circle Theorems

There are 8 circle theorems but we need to introduce an important word first: subtended. This means the angle created by an object at a given point.

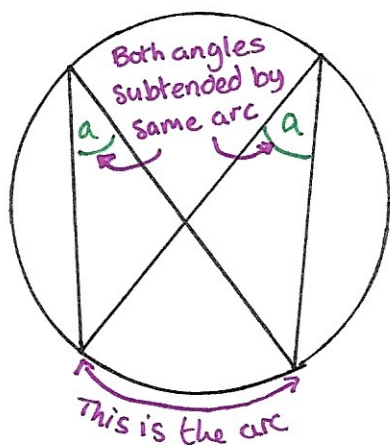
Theorem 1: The angle subtended by an arc at the centre is twice the angle subtended at the circumference.



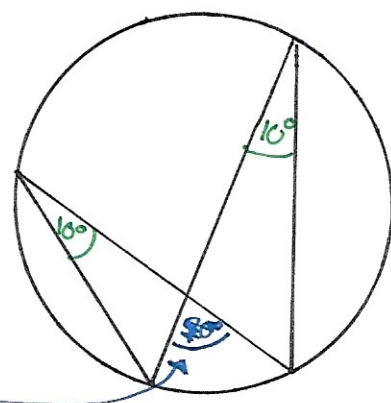
Other variations and examples:



Theorem 2: The angles subtended by the same arc and equal/
Angles in the same segment are equal.

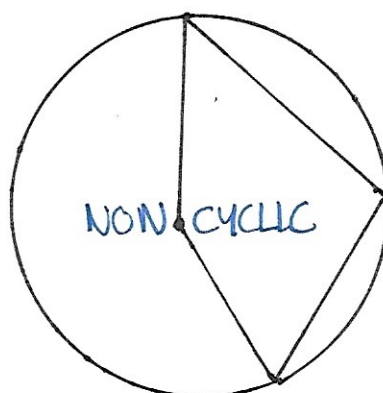
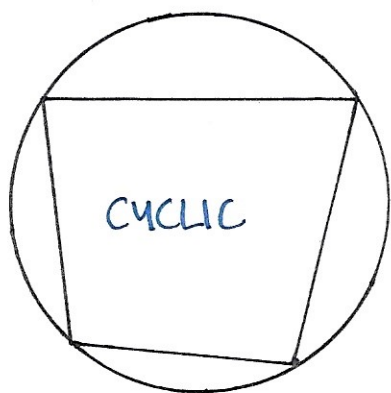


~~Don't forget~~
~~this still applies~~

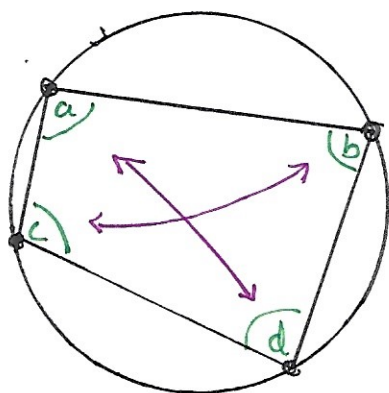


Before theorem 3 we need another definition:

Cyclic quadrilateral: a quadrilateral (4 sided shape) drawn inside a circle and every corner MUST touch the circumference.



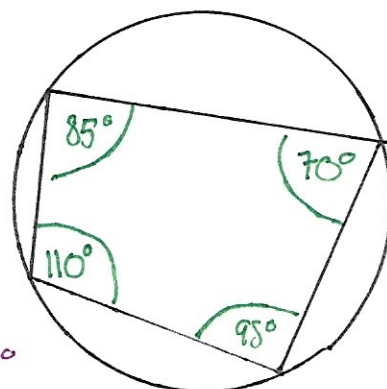
Theorem 3: Opposite angles in a cyclic quadrilateral add up to 180° .



$$a + d = 180^\circ$$

and

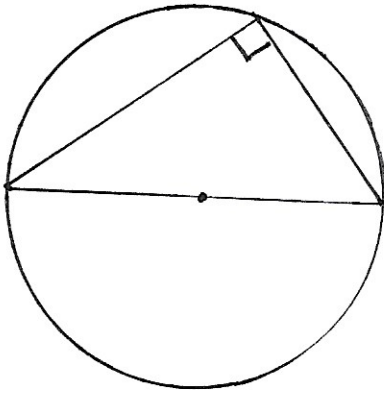
$$c + b = 180^\circ$$



$$85^\circ + 95^\circ = 180^\circ$$

$$110^\circ + 70^\circ = 180^\circ$$

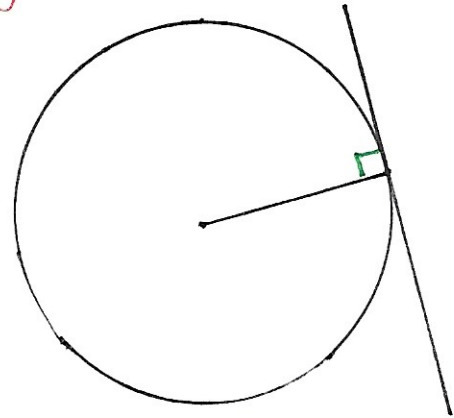
Theorem 4: The angle at the circumference in a semi circle is 90° (a right angle).



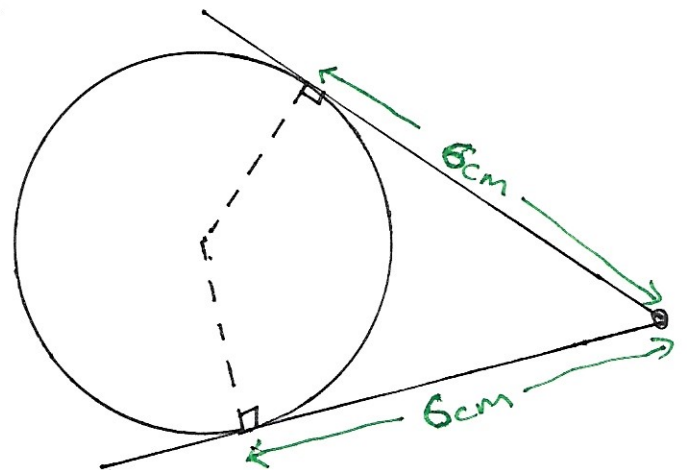
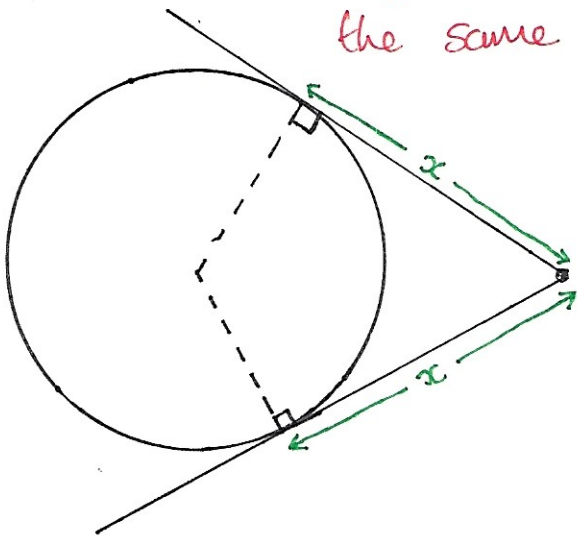
This is just a specific example of theorem 1 but they just want to make it really clear.

Theorem 5: The angle between a tangent and a radius is 90° .

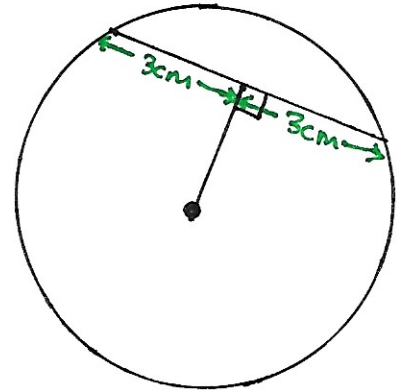
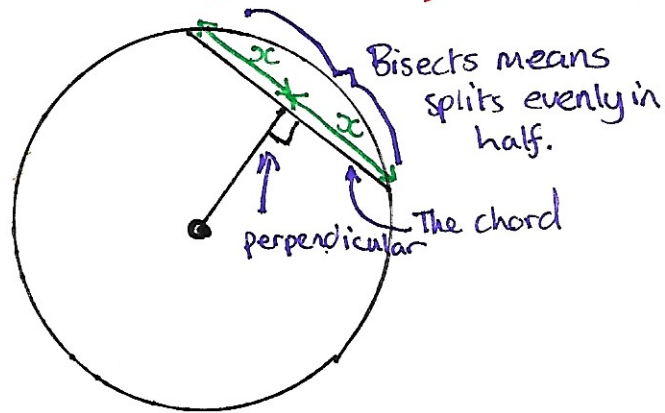
That's all there is to this one, nice and simple.



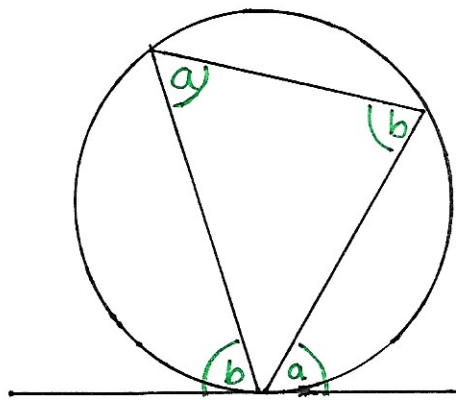
Theorem 6: Tangents which meet at the same point are the same length.



Theorem 7: The perpendicular from the centre of a circle to a chord, bisects the chord.



Theorem 8 (Alternate segment theorem): The angle between a tangent and a chord is equal to the angle in the alternate segment.



The angles 'a' are equal.

The angles 'b' are equal.

