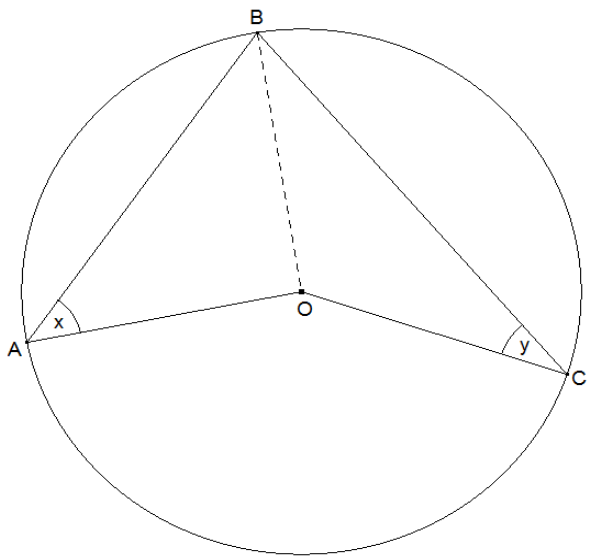
Mathematics Department Workshops

Topic: Circle Theorems
Resource Sheet HT1.CIR.5

Circle Theorems Activity 5: Geometric Proof 2

Proving the angle at the centre is twice the angle at the circumference

$180° - 2y$	isosceles
AOC	circumference
x	angle
centre	BO
360°	point
radii	CBO
sum	180°



O is the centre of the circle and A, B and C are points on the circumference.
Complete the missing words from the list above to complete the proof.

AO, ________ and CO are all ________ .

This means triangle AOB is ________ so angle ABO is ________.

Similarly, ________ COB is isosceles so angle ________ is y.

As the ________ of the angles in a triangle equals ________ , then angle AOB is $180° - 2x$.

Similarly, ________ COB is ________ .

As the sum of the angles at a ________ equals 360° , then:

$$(180° - 2x) + (180° - 2y) + \text{angle AOC} = \text{\_\_\_\_\_\_\_\_} .$$

Hence, angle ________ $= 2x + 2y$.

This ________ that the angle at the _______ is twice the angle at the ________ .

Why does this approach also prove that the angle in a semicircle is 90°?

Add any relevant terms to the Glossary poster