

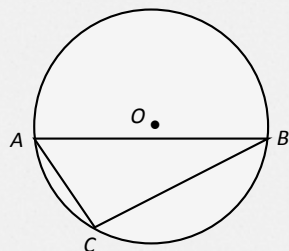
Angles in a semicircle

Teaching notes

Key question / task

Angles in a semicircle

The diagram shows a circle, centre O .



Is angle $\hat{ACB}$:

- ☐ smaller than 90°
- ☐ equal to 90°
- ☐ greater than 90° ?

Resources:

- Pair of compasses, protractor, ruler, pencil

Supplementary questions:

- How do you know?
- What if point C is moved along the circumference towards either A or B ? Measure $\hat{ACB}$ to find the effect on its value of moving C .
- What if chord AB passes through O ? (What is the special name given to the chord in this case?)

Reasoning: questions to discuss and explore

- What if points A and B are moved to new positions?
- When will $\hat{ACB}$ be acute? ... obtuse?

Consolidation

- Vary the position of point C and measure angle $\hat{ACB}$, giving evidence for 'angles on the same arc'.
- Vary the position of points A , B and C and measure the relevant angles.

Commentary / notes:

The purpose of this task is to:

- Check angle measuring skills;
- Consolidate the fact that the angle in a semicircle is 90° ;
- Consolidate the fact that angles in the same segment are equal.

In order to convince learners, it is worth comparing evidence with other students, including checking angle measurements with others in the class.

Emphasise the need to use correct terminology, including vocabulary related to the circle (e.g. chord, arc, circumference, segment, etc) and also 3-letter notation for specifying angles.

Pupils must get accustomed to writing their reasons **in full** in the case of geometry questions.

GCSE Subject Content		
Foundation	Intermediate	Higher
	Using the fact that the angle subtended at the circumference by [the diameter] is a right angle, that angles in the same segment are equal.	

Learner Outcomes and Assessment <i>(to aid comment-only marking)</i>	
Reasoning strand – Learners are able to:	Assessment guidance – Can learners:
- Develop and evaluate mathematical strategies and ideas creatively; - Select and apply appropriate checking strategies.	- Measure angles accurately? - Give a correct explanation of the size of angle $\hat{ACB}$ as the position of C varies? - Give a correct explanation of the size of angle $\hat{ACB}$ as the positions of A and B vary?
Measures strand – Learners are able to:	
- Measure angles accurately; - Explain results and procedures precisely using appropriate mathematical language; Understand and construct a geometric proof using circle theorems.	