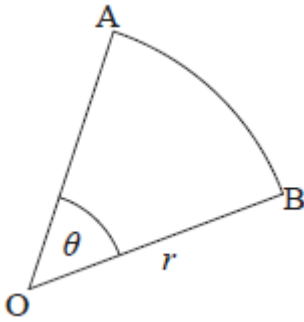


AI HL 08.09 [13 marks]

1. [Maximum mark: 8]

22M.1.AHL.TZ2.8

The diagram shows a sector, OAB , of a circle with centre O and radius r , such that $\widehat{AOB} = \theta$.



Sam measured the value of r to be 2 cm and the value of θ to be 30° .

- (a) Use Sam's measurements to calculate the area of the sector. Give your answer to four significant figures. [2]

It is found that Sam's measurements are accurate to only one significant figure.

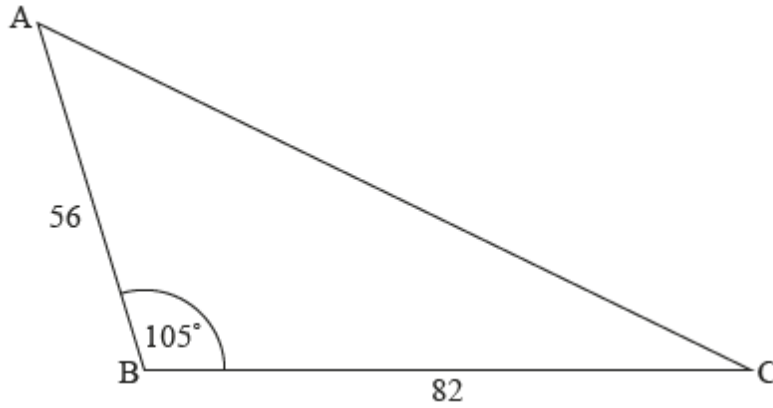
- (b) Find the upper bound and lower bound of the area of the sector. [3]
- (c) Find, with justification, the largest possible percentage error if the answer to part (a) is recorded as the area of the sector. [3]

2. [Maximum mark: 5]

21M.1.SL.TZ1.9

A triangular field ABC is such that $AB = 56$ m and $BC = 82$ m, each measured correct to the nearest metre, and the angle at B is equal to 105° , measured correct to the nearest 5° .

diagram not to scale



Calculate the maximum possible area of the field.

[5]