

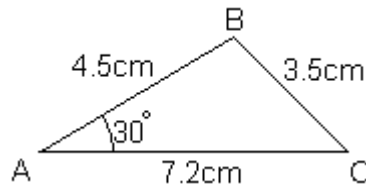
CircumCircle

From www.1000problems.com

The Problem:

A certain triangle has the dimensions:

$$AB = 4.5\text{cm}, BC = 3.5\text{cm}, CA = 7.2\text{cm}, \text{ and } \angle CAB = 30^\circ.$$



A circle is drawn through A, B and C.

What is the diameter of this circle?

Hint:

Use your 'angles in a circle' theorems.

Solution:

This Problem looks so much like a Cosine Rule type of problem, that it makes a nice surprise that its Solution is so simple.

$$\angle COB = 2 \times \angle CAB$$

(angle at centre = 2 x angle at circumference)

$$\text{So } \angle COB = 60^\circ$$

But $\triangle COB$ is Isosceles (equal radii)

Hence, $\angle OCB = \angle OBC = 60^\circ$ also

This makes $\triangle COB$ Equilateral, and the radii equal to 3.5cm

Hence, **the diameter of the circumcircle is 7cm.**

