

Example question – Triangulation

Two survey stations **A** and **B** are located **500 m apart** on level ground.

A surveyor wants to determine the position of a radio mast at point **C**.

From station **A**, the angle between the baseline **AB** and the line to the mast is measured as:

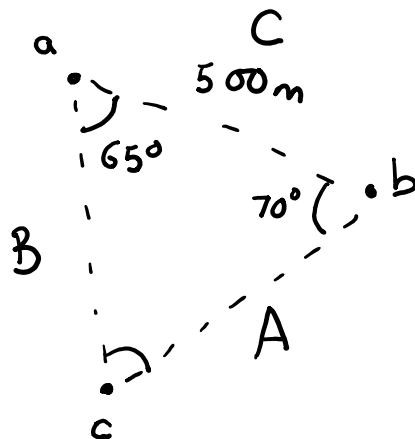
$$A = 70^\circ$$

From station **B**, the angle between the baseline **BA** and the line to the mast is:

$$B = 65^\circ$$

Calculate:

1. The angle at the mast, C .
2. The distance from station **A** to the mast, AC .
3. The distance from station **B** to the mast, BC .



$$\text{Angle } C = 180 - 70 - 65 = 45^\circ$$

~~$$\frac{A}{\sin a} = \frac{B}{\sin b} = \frac{C}{\sin c}$$~~

$$\underline{B} = \underline{500}$$

$$\frac{B}{\sin 70} = \frac{500}{\sin 45}$$

$$B = \sin 70 \times \frac{500}{\sin 45} = 664.5 \text{ m}$$

$$\frac{A}{\sin a} = \frac{c}{\sin C}$$

$$\frac{A}{\sin 65} = \frac{500}{\sin 45}$$

$$A = \sin 65 \times \frac{500}{\sin 45} = 640.9 \text{ m}$$