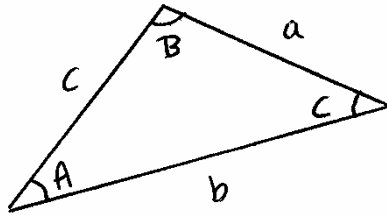


## The Cosine Rule

This is the last of the triangle formulas. You should only use this if you know all 3 sides or you do not have a complete ratio.



Formulas:

To find a missing angle

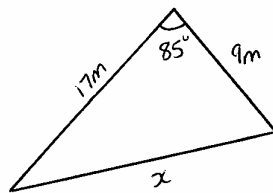
$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

To find a missing side

$$a^2 = b^2 + c^2 - (2bc \cos A)$$

### Finding an Unknown Side

Example 1. Find the value of x



$$a^2 = b^2 + c^2 - (2bc \cos A)$$

$$a^2 = 9^2 + 17^2 - (2 \times 9 \times 17 \times \cos 85)$$

$$a^2 = 343.33$$

$$a = 18.53m \text{ (2dp)}$$

Remember to leave  
this value in your  
calculator to keep  
your accuracy