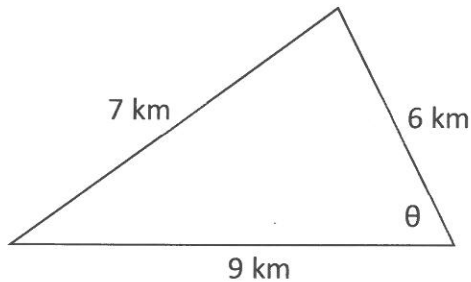


Just as with the Law of Sines, we can also use the Law of Cosines to find the size of an angle. In such cases, we must know all three sides and no angles.

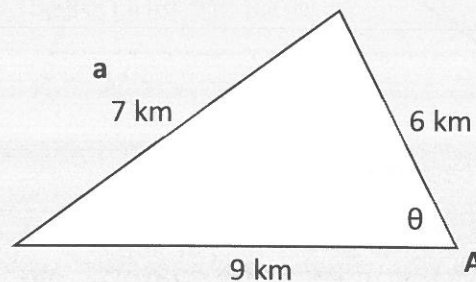
### Example 3

Determine the size of the angle labelled  $\theta$ .



Again, we have no 'partners' given, which makes this a cosine law question. As with the previous examples, LABEL WHAT YOU ARE LOOKING FOR 'a' (if looking for a side) or 'A' (if looking for an angle).

In this triangle we are looking for angle  $\theta$ , so label that 'A' (and label the opposite side 'a'), as shown below:



Now that you have labelled the 'A' and 'a', you need to pick the correct formula. If you are looking for a missing angle using the cosine law, choose the second version of the cosine law (shown below):

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

Now fill in the missing information. You have already labelled 'A' and 'a'. The other two sides become 'b' and 'c' (either label for either side – it does not matter).

(example continues...)