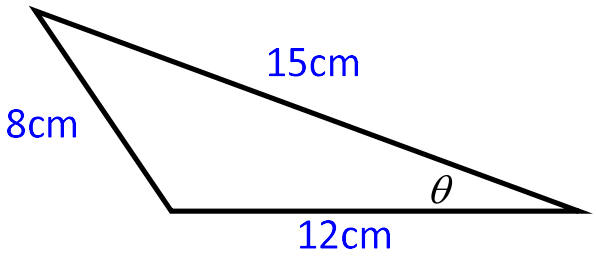
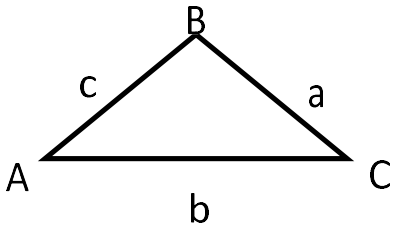
6.7 Find Angles Using the Cosine Law



Can you find the unknown angle using Cosine Law???
Try it!

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

Cosine Law: In Δ ABC



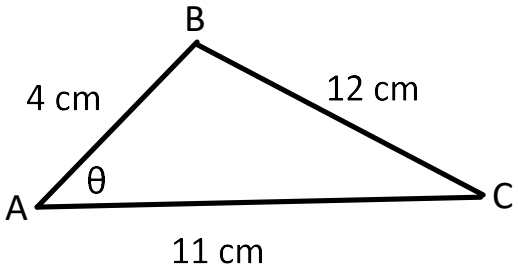
$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

use to find an angle

See the pattern:

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

Example:



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

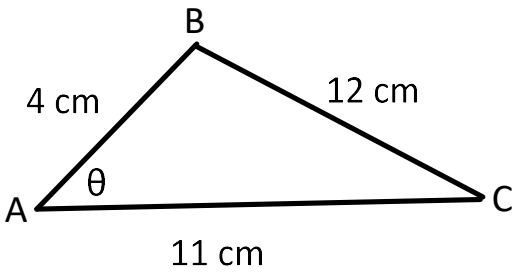
$$\cos A = \frac{11^2 + 4^2 - 12^2}{2(11)(4)}$$

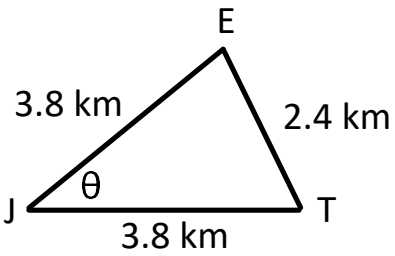
$$\cos A = \frac{-7}{88}$$

$$A = \cos^{-1}\left(\frac{-7}{88}\right)$$

$$\doteq 94.6^\circ$$

1) Solve for the unknown.





2) Solve Δ DEF if d = 27 m, e = 32 m, f = 51 m.

3) Your parents agree to build you a new room in the attic.
It will be a triangular shape like the one shown. The contractor needs to know all the angles in the triangle to build this special room. Find the angles of your new room.

Practice!

Set 1: p. 418#2ac,3ab,5a,8

Set 2: p. 418#3b,5a,8,9,11,16