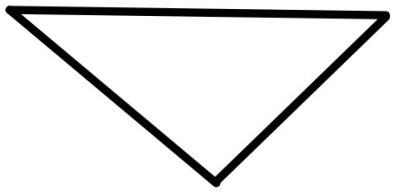
Bellwork

Solve the following triangle:

1. $\angle C = 135^{\circ}$, b = 15, & c = 100



The Law of Cosines

There are 3 ways to set this up, but if you can remember one of them you should be able to remember them all:

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

2. $b^2 = a^2 + c^2 - 2ac \cdot \cos B$

3. $c^2 = a^2 + b^2 - 2ab \cdot \cos C$

When do I use the Law of Cosines?

Solving triangles when you are given:

1. 2 sides and the included angle.
   This will assist in finding the 3rd side that has not been given.
2. All 3 of the sides.
   This will assist in finding any of three missing angles.

Can you join this with the Law of Sines?

As with any math concepts, using multiple approaches is always encouraged if it will simplify the process.

Example

Solve the following triangle formed by the given information:

1. a = 25, b = 52, & c = 47

Example

Solve the following triangle formed by the given information:

2. $\angle C = 85^{\circ}$, a = 12, & b = 35