

Today's Learning Goal(s):

By the end of the class, I will be able to:

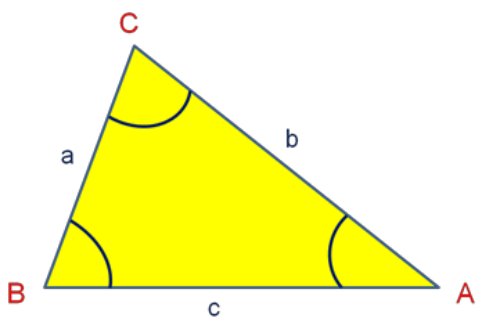
- a) Correctly write the sine **LAW** and the cosine **LAW** in one of the two forms.
- b) Use the sine law and cosine law to solve a non-right triangles.

5.2.1 Reviewing the Sine **LAW** and Cosine **LAW** (to Solve Oblique Triangles)

Date: _____

The Sine Law can be used with any triangle, even if it is not a right triangle.

Given any triangle,



①

and

②

If you are trying to determine an unknown side, then use the formula given in ①

If you are trying to determine an unknown angle, then use the formula given in ②

So why do we need the Cosine Law?

When the triangle we are solving involves 2 known sides and the contained angle (a.k.a. SAS), then we use the formula given in ③. Remember to take the square root of the answer to find *a*.

③

(SAS)

When the triangle we are solving involves 3 known sides, but no known angles (a.k.a. SSS), then we use the formula given in ④. Remember to take the inverse cos, (or \cos^{-1}) to find the measure of angle A.

Note: In this case, always find the largest angle first, in case it is an obtuse angle.

The largest angle will be located opposite the longest side. [Think about it!]

Show rearrange?

④

(SSS)

Ex. 1 Solve the triangle. (Round side lengths to 3 decimal places and angles to 2 decimal places.)

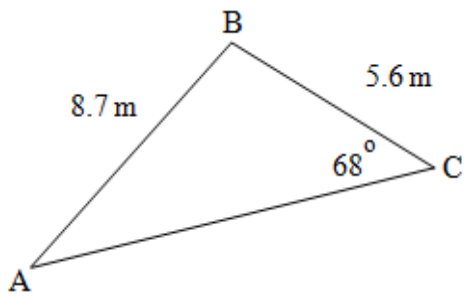


Diagram is not drawn to scale.

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Ex. 2 Solve the triangle. (Round according to our rules.)

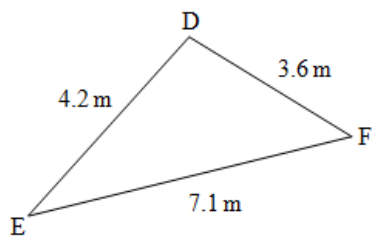
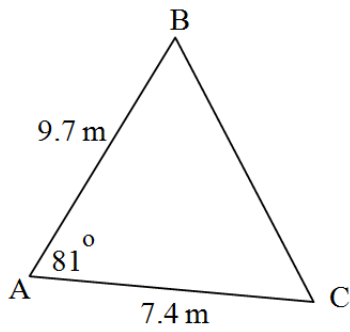


Diagram is not drawn to scale.

Since we have SSS, use ④	Now use the sine law	Now use the triangle sum
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Ex. 3 Solve the triangle. (Round according to our rules.)

Diagram is not drawn to scale.



Since we have SAS, use ③

Now use the sine law (it's easier)

Now use the triangle sum