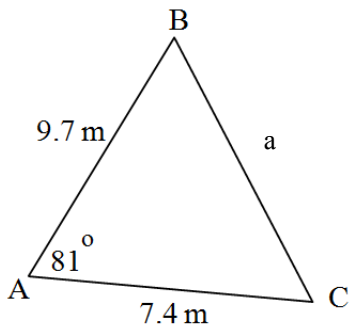


Warm-up

Write the sine law for the following triangle:



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{\sin 81^\circ} = \frac{7.4}{\sin B} = \frac{9.7}{\sin C}$$

Before we begin, are there any questions from last day's work?

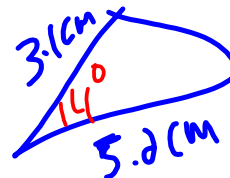
p. 31 #1a, 2b, 3b, 5, 7 (write an explanation – you don't need a partner) , 9

Today's Learning Goal(s):

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

- Correctly write the cosine LAW to find an unknown side.
- Use the cosine law to solve a non-right triangle.

Hand out text books/cards today?

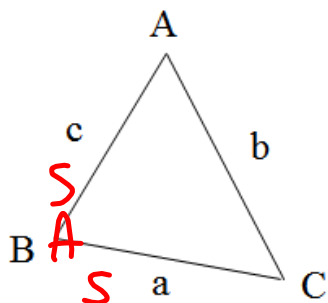


MBF 3CI

1.4 The Cosine Law (Day 1)

Date: Feb. 13/17

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



$$\textcircled{1} \quad a^2 = b^2 + c^2 - 2bc \cos A \quad (\text{SAS})$$

$$\textcircled{2} \quad \text{[Redacted]} \quad (\text{SSS})$$

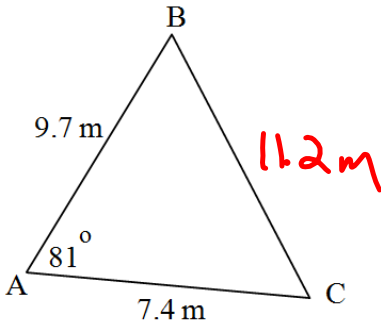
When the triangle we are solving involves 2 known sides and the contained angle (a.k.a. SAS), then we use the formula given in $\textcircled{1}$, because the sine law will not work.

Remember to take the square root of the answer to find a .

(Day 2)

Ex. 1 Solve the triangle. (Round side lengths and angles to the nearest centh)

Diagram is not drawn to scale.



a	$\angle B$	$\angle C$
Since we have SAS, use ① $a^2 = b^2 + c^2 - 2bc \cos A$ $a^2 = 7.4^2 + 9.7^2 - 2(7.4)(9.7)\cos 81^\circ$ $a^2 = 7.4^2 + 9.7^2 - 2 \times 7.4 \times 9.7 \times \cos 81^\circ$ $\doteq 126.392$ <i>this value is a^2</i> $a \doteq \sqrt{126.392}$ $\doteq 11.24$ $\doteq 11.2 \text{ m}$	Now use the sine law (it's easier) $\frac{\sin B}{b} = \frac{\sin A}{a}$ $\frac{\sin B}{7.4} = \frac{\sin 81^\circ}{11.2}$ $11.2 \sin B \doteq 7.4 \sin 81^\circ$ $\cdot 11.2$ $\cdot 11.2$ $\sin B \doteq \frac{7.4 \sin 81^\circ}{11.2}$ $B \doteq \sin^{-1}\left(\frac{7.4 \sin 81^\circ}{11.2}\right)$ $\doteq 40.73$ $\doteq 40.7^\circ$	Now use the triangle sum $\angle C \doteq 180^\circ - 81^\circ - 40.7^\circ$ $\doteq 58.3^\circ$

*Wed Feb. 8
Fri. Feb. 10*

Review the learning goals. Were we successful today?

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

- a) Correctly write the cosine LAW to find an unknown side.
- b) Use the cosine law to solve a non-right triangle.

Today's entertainment: p. 39 #1a, c

Review for tomorrow's quiz:
SOH CAH TOA and the Sine Law