

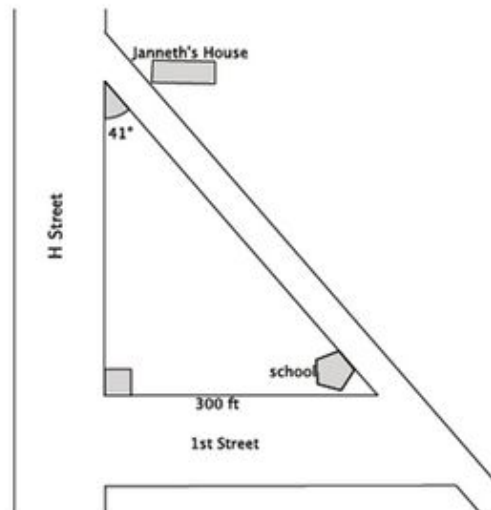
Lesson 2.6.3: Solving Problems Using Sine and Cosine

Targets:

1. I can find missing side lengths of triangles using sine and cosine.

Practice 1

The bus drops you off at the corner of H Street and 1st Street, approximately 300 ft. from school. You plan to walk your friend Janneth's house after school to work on a project. Approximately how many feet will you have to walk from school to Janneth's house? Round your answer to the nearest foot.



Practice 2

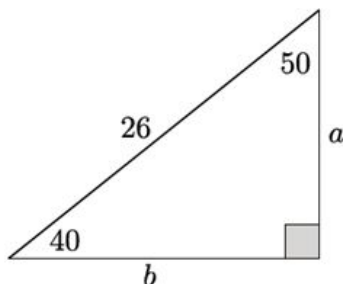
Use a calculator to find the sine and cosine of θ . Give your answer rounded to the ten-thousandth place.

θ	0	10	20	30	40	50	60	70	80	90
$\sin \theta$										
$\cos \theta$										

- a) What do you notice about the numbers in the row $\sin \theta$ compared with the numbers in the row $\cos \theta$?
- b) Provide an explanation for what you noticed in part a.

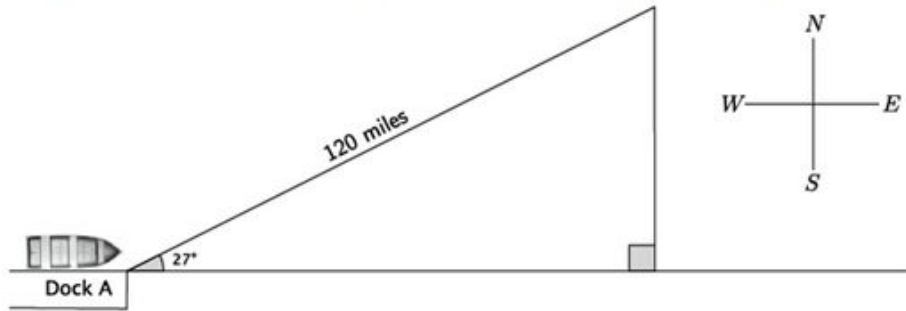
Practice 3

Find the values of a and b .



Practice 4

A shipmate set a boat to sail exactly 27° NE from the dock. After traveling 120 miles, the shipmate realized he had misunderstood the instructions from the captain; he was supposed to set sail going directly east!

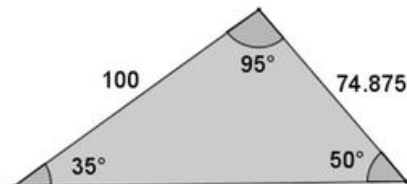


- a) How many miles will the shipmate have to travel directly south before he is directly east of the dock? Round your answer to the nearest mile.
- b) How many extra miles does the shipmate travel by going the wrong direction compared to going directly east? Round your answer to the nearest mile.

Practice 5

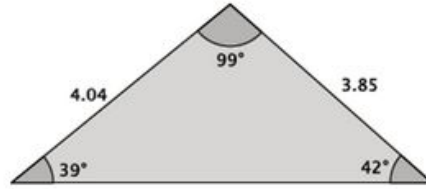
Johanna borrowed some tools from a friend so that she could precisely, but not exactly, measure the corner space in her backyard to plant some vegetables. She wants to build a fence to prevent her dog from digging up the seeds that she plants. Johanna returned the tools to her friend before making the most important measurement: the one that would give the length of the fence!

Johanna decided that she could just use the Pythagorean Theorem to find the length of the fence she'd need. Is the Pythagorean Theorem applicable in this situation? Explain.



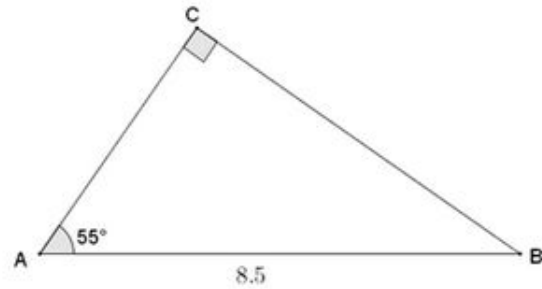
Practice 6

The measurements of the triangle shown below are rounded to the nearest hundredth. Calculate the missing side length to the nearest hundredth.



Exit Ticket

1. Given right triangle ABC with hypotenuse $AB = 8.5$ and $\angle A = 55^\circ$, find AC and BC to the nearest hundredth.



2. Given triangle DEF , $\angle D = 22^\circ$, $\angle F = 91^\circ$, $DF = 16.55$, and $EF = 6.74$, find DE to the nearest hundredth.

