

(DN) ON BACK OF PACKET

Name _____ Per _____

LO: I can solve for unknown values by using sine, cosine, and tangent ratios.

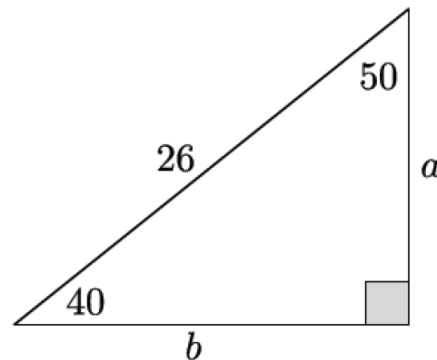
(1) Using sine, cosine and tangent with a calculator to solve problems

calculator

Jordan is trying to find the values of a and b. Yanaraitza tells him there are 4 different equations he can write, 2 using sine and 2 using cosine.

(a) Noah suggests the equation: $\cos 40^\circ = \frac{a}{26}$

Will Noah's equation work? If so, use it to find a.
If not, write a different equation and solve it.



(b) Write and solve an equation to find the value of b.

(c) Write a different equation that could have been used to find a. _____

(d) Write a different equation that could have been used to find b. _____

(e) Why isn't tangent helpful in finding a and b in this problem?

(2)
calculator

Using sine, cosine and tangent with a calculator to solve problems\

Write and solve an equation for each diagram to find the variable.

Use the guides below to help you.

(1) Mark the reference angle with and eyeball.

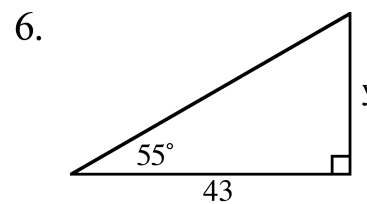
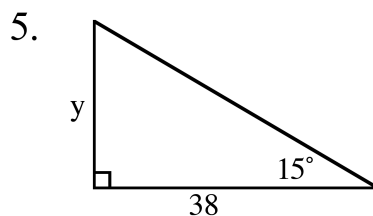
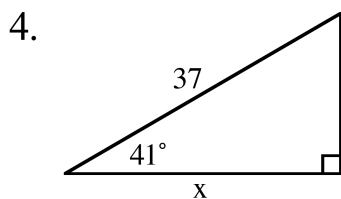
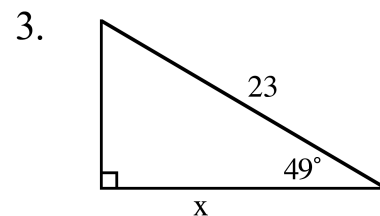
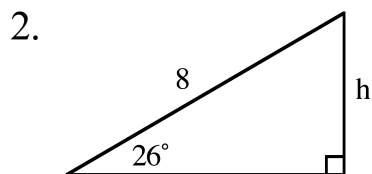
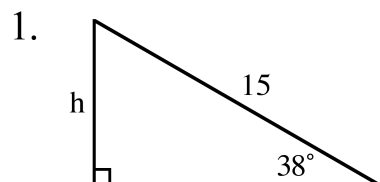
(2) Identify what 2 parts you will be using (hyp, opp, adj)

(3) Based on your findings in (2), figure out which trig ratio you need to use (sine, cosine, tangent)

$$\sin \angle = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos \angle = \frac{\text{adjacent}}{\text{hypotenuse}}$$

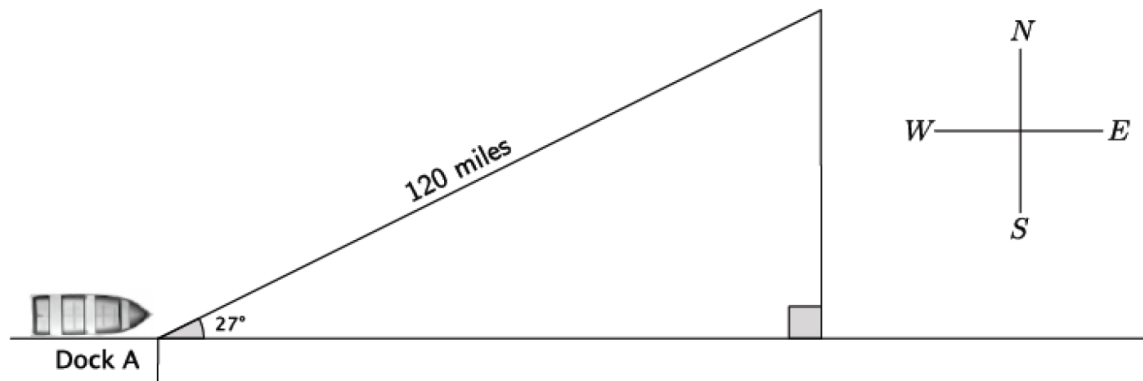
$$\tan \angle = \frac{\text{opposite}}{\text{adjacent}}$$



(3)
calculator

Using sine, cosine and tangent with a calculator to solve problems

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.

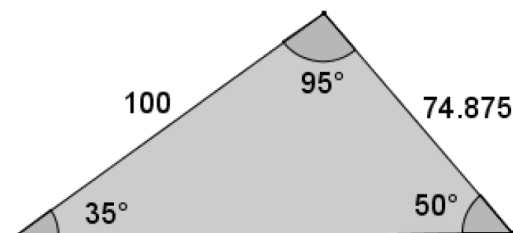
(b) How many extra miles does the shipmate travel by going the wrong direction compared to going directly east? Round your answer to the nearest mile.

(4) Using sine, cosine and tangent with a calculator to solve problems

calculator

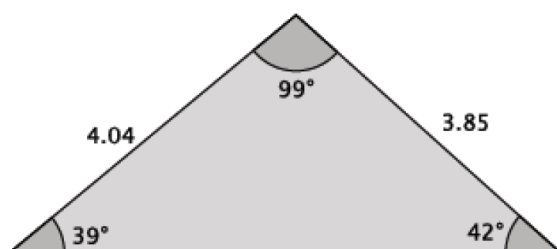
Johanna borrowed some tools from a friend so that she could precisely, but not exactly, measure the corner space in her backyard to plant some vegetables. She wants to build a fence to prevent her dog from digging up the seeds that she plants. Johanna returned the tools to her friend before making the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



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

calculator



(6)
calculator

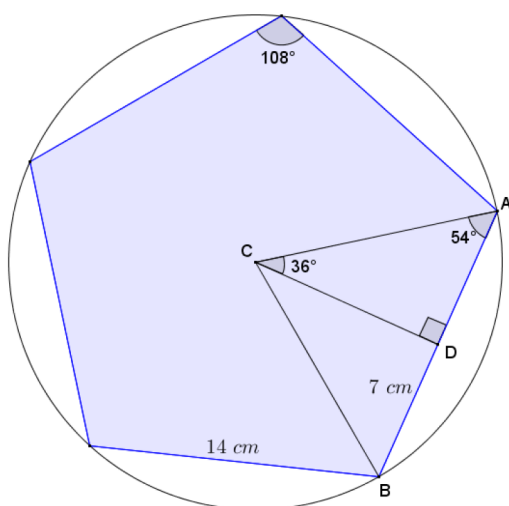
Using sine, cosine and tangent with a calculator to solve problems

Tim is designing a roof truss in the shape of an isosceles triangle. The design shows the base angles of the truss to have measures of 18.5° . If the horizontal base of the roof truss is 36 ft. across, what is the height of the truss?

(7)
calculator

Using sine, cosine and tangent with a calculator to solve problems

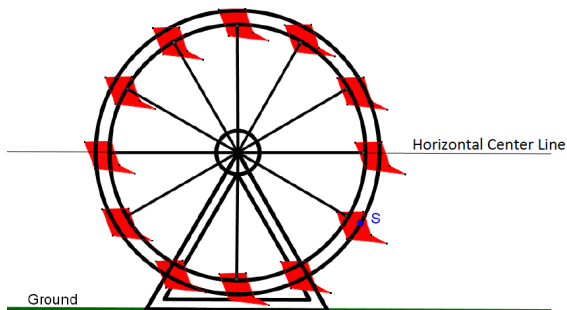
A regular pentagon with side lengths of 14 cm is inscribed in a circle. What is the radius of the circle?



(8)
calculator

Using sine, cosine and tangent with a calculator to solve problems

The circular frame of a Ferris wheel is suspended so that it sits 4 ft. above the ground and has a radius of 30 ft. A segment joins center C to point S on the circle. If \overline{CS} makes an angle of 48° with the horizon, what is the distance of point S to the ground?

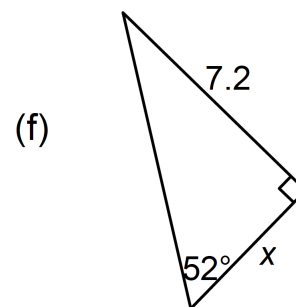
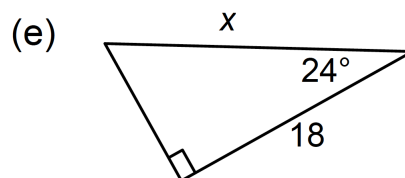
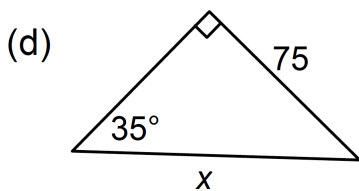
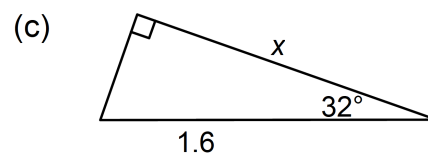
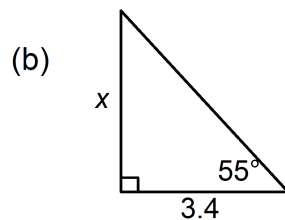
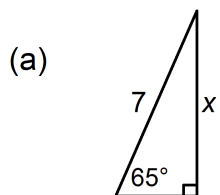


(9) **Exit Ticket**
calculator

ON THE LAST PAGE

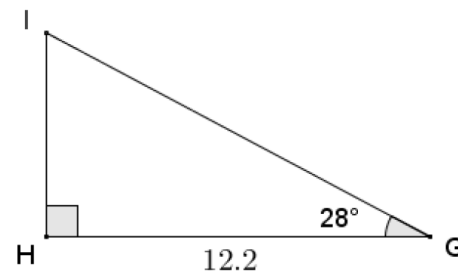
(10) **Homework**
calculator

(1) Write an equation and solve for x .

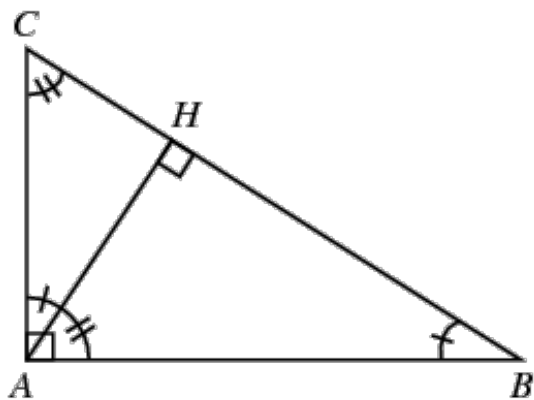


(10) Homework
calculator

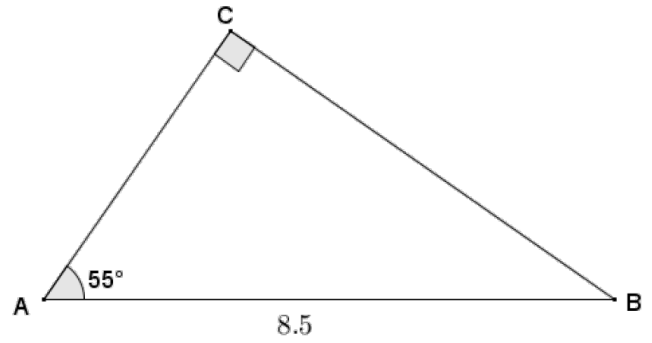
- (2) Given right triangle GHI , with right angle at H , $GH = 12.2$, and $m\angle G = 28^\circ$, find the measures of the remaining sides and angle to the nearest tenth.



- (3) Describe a sequence of transformations that will map triangle CHA to triangle AHB and then to triangle CAB .



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



CHECK EACH BOX AS YOU COMPLETE THE TASK

- Find the sin, cos, and tan buttons on your calculator
- Make sure your calculator is working with degrees by
 - Press the mode button at the top of the calculator
 - Use the arrows to move the cursor to degrees
 - Press enter

Use a calculator to find the sine and cosine of θ . Give your answer rounded to the ten-thousandth place.
 START BY MAKING SURE YOU GET THE VALUES FOR $\sin 10$ and $\cos 10$ that are already in the table for you.

θ	0	10	20	30	40	50	60	70	80	90
$\sin \theta$.1736								
$\cos \theta$.9848								

What do you notice from the table? Why do you think that happens?

