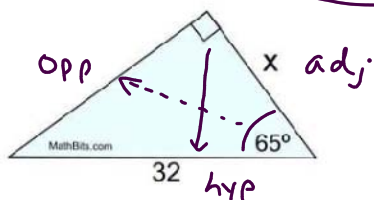


Geometry CC – Mr. Valentino  
Unit 7 Lesson 6: Trig to find Angles

Name: \_\_\_\_\_  
Date: \_\_\_\_\_ Period: \_\_\_\_\_

DO NOW: Find  $x$  to the nearest tenth.



~~SOH~~ (CAH) ~~TOA~~

$$\cos 65 = \frac{x}{32}$$

$$x = 32 \cos 65$$

$$x \approx 13.5$$

Now that we have practiced solving for missing side lengths using trig functions, we will learn how to solve for missing angle measures.

✓ $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$	✓ $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$	✓ $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$
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One of the beauties of these trigonometric functions is that you can find the measure of an acute angle of a right triangle if you know two of the sides of the triangle.

The initial set up for solving these problems will be the same as that for finding a missing side.

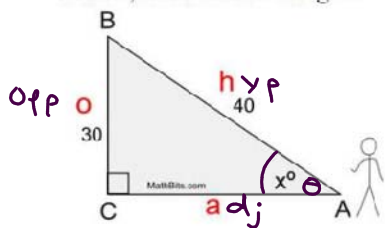
To finish the problem, however, it will be necessary to use a calculator function referred to as an "inverse function" to find the actual number of degrees in the angle.



- Inverse of  $\sin(x) = \sin^{-1}(x)$
- Inverse of  $\cos(x) = \cos^{-1}(x)$
- Inverse of  $\tan(x) = \tan^{-1}(x)$

You can think of the inverse functions as undoing the trigonometric functions, leaving us with just the angle. Let's practice!

Find  $x$ , to the nearest degree.



(SOH) (CAH) (TOA)

$$\sin x = \frac{30}{40}$$

$$\sin x = .75$$

$$x = 49^\circ$$

Find each angle measure to the nearest degree:

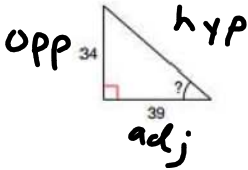
- $\sin(A) = .8290$   
 $56^\circ$
- $\cos(A) = .1564$   
 $81^\circ$
- $\tan(A) = .4452$   
 $24^\circ$

	NORMAL FLOAT AUTO REAL DEGREE MP
$\cos^{-1}(.1564)$	81.00384755
$\tan^{-1}(.4452)$	23.99862834
$\sin^{-1}(.75)$	48.59037789
$\sin^{-1}(30/40)$	48.59037789

round to nearest tenth

Time for more practice!

1.



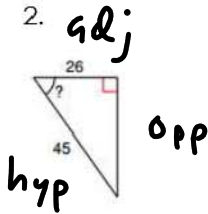
SOX CAH TOA

$$\tan x = \frac{34}{39}$$

$$x = 41.1^\circ$$

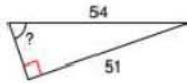
	NORMAL FLOAT AUTO REAL DEGREE MP
$\tan^{-1}(.4452)$	81.00199931
$\sin^{-1}(.75)$	23.99862834
$\sin^{-1}(30/40)$	48.59037789
$\tan^{-1}(34/39)$	48.59037789
	41.08175114

2.

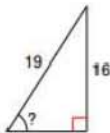


$$\cos x = \frac{26}{45}$$

3.



4.



5.

