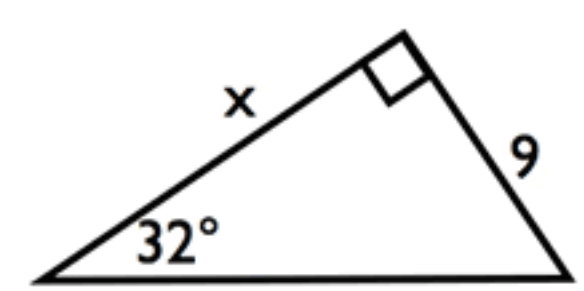
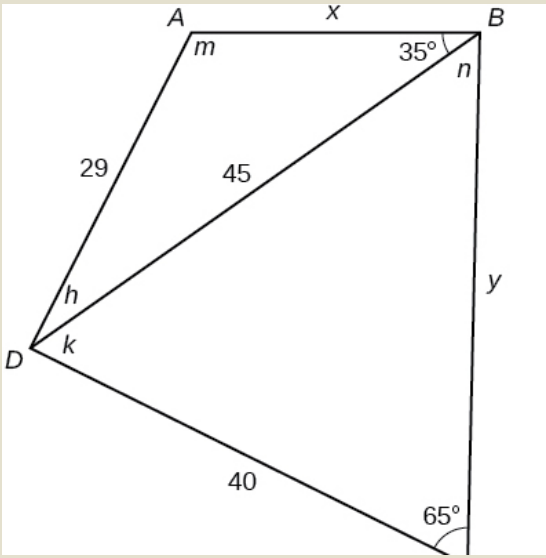
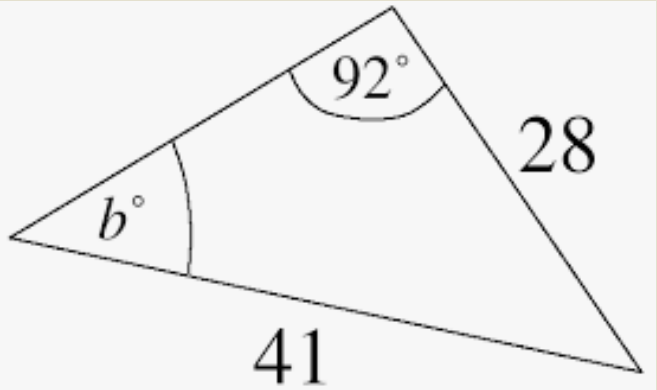
Objective: Use inverse trig functions to solve for angles.

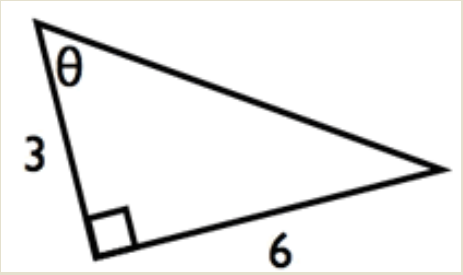
Warmup

On which of the triangles below can you use the basic trig functions to solve for a missing length? Why? (you don't need to actually solve)





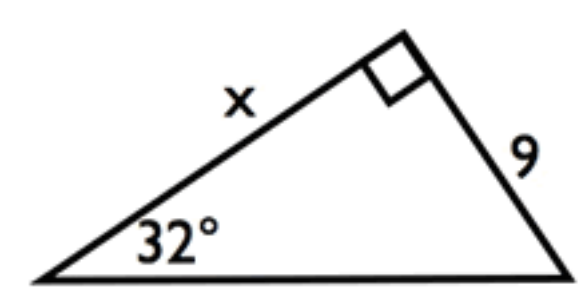


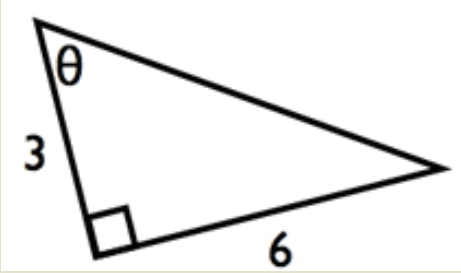


Objective: Use inverse trig functions to solve for angles.

Warmup

Just these two because there must be a right angle!



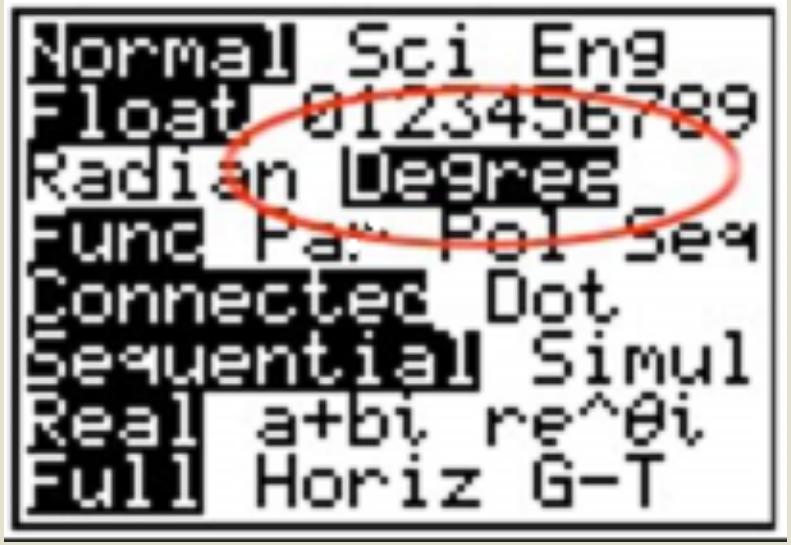


Objective: Use inverse trig functions to solve for angles.

Calculator Settings

IF the angle given is in degrees, make sure your calculator is set to degrees.

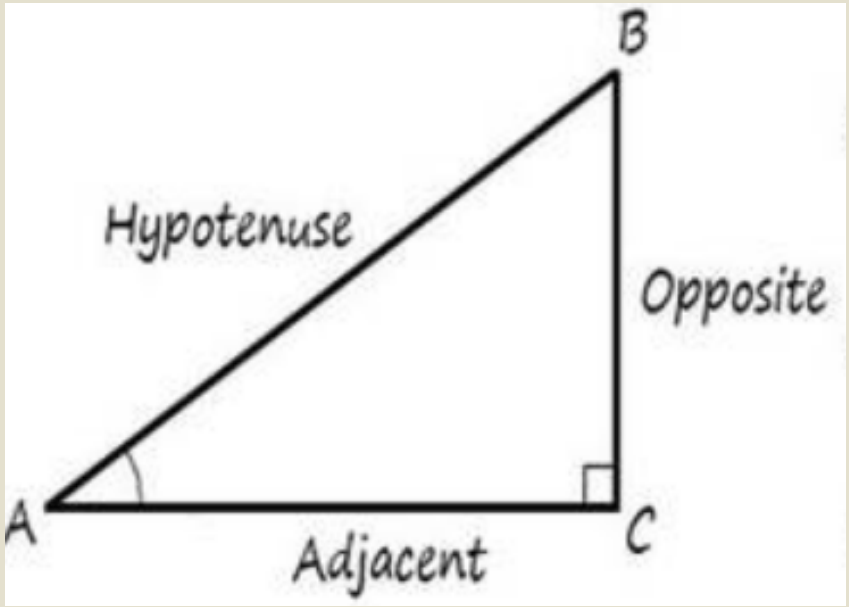
This screen is accessed via the MODE button



If it is in radians, make sure it is set to radians.

Objective: Use inverse trig functions to solve for angles.

Right Triangle Definitions of Trigonometric Functions



$$\sin\theta = \frac{opp}{hyp} \qquad \csc\theta = \frac{hyp}{opp}$$

$$\cos\theta = \frac{adj}{hyp} \qquad \sec\theta = \frac{hyp}{adj}$$

$$\tan\theta = \frac{opp}{adj} \qquad \cot\theta = \frac{adj}{opp}$$

The opposite and adjacent sides are relative to the location of the angle you are using. The picture above is using angle A as Θ.

Objective: Use inverse trig functions to solve for angles.

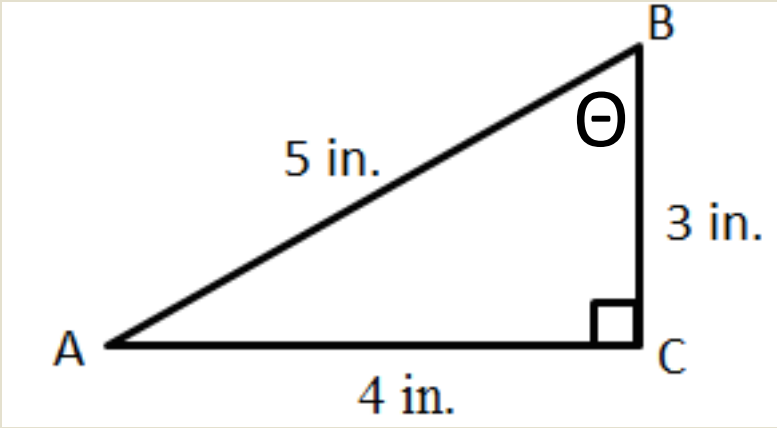
Inverse Trig Functions

Inverse trig functions are used to find missing angles in a right triangle.

Inverse Trigonometric Functions
If $\sin A = x$, then $\sin^{-1} x = m\angle A$.
If $\cos A = x$, then $\cos^{-1} x = m\angle A$.
If $\tan A = x$, then $\tan^{-1} x = m\angle A$.

Objective: Use inverse trig functions to solve for angles.

Inverse Trig Functions



We know how to set up the ratios

To solve for the angle you take the inverse sin of both sides $\sin\theta = \frac{4}{5}$

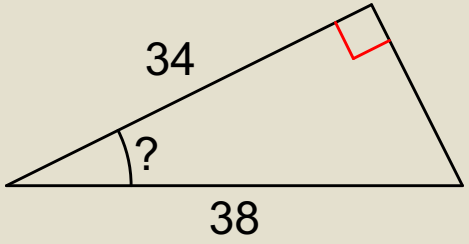
sin $\sin^{-1}$ are inverses so they cancel and you just put the other side in your calculator

$$\sin^{-1}(\sin\theta) = \sin^{-1}\left(\frac{4}{5}\right) \qquad \theta = 53.13°$$

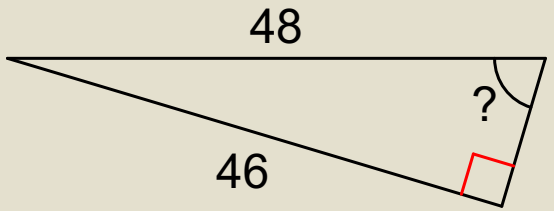
Objective: Use inverse trig functions to solve for angles.

Practice Finding unknown angles

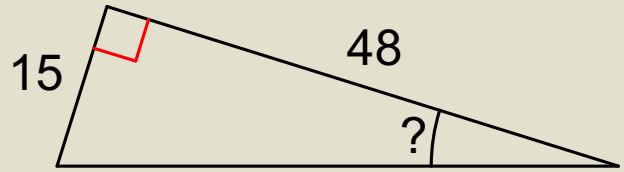
1.



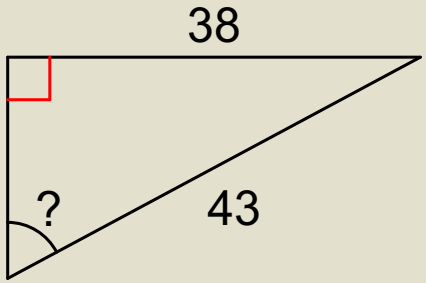
2.



3.



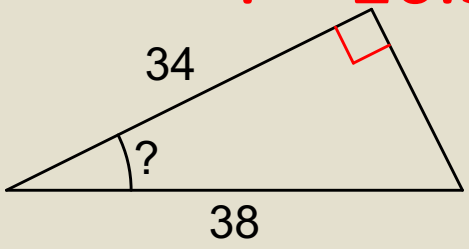
4.



Objective: Use inverse trig functions to solve for angles.

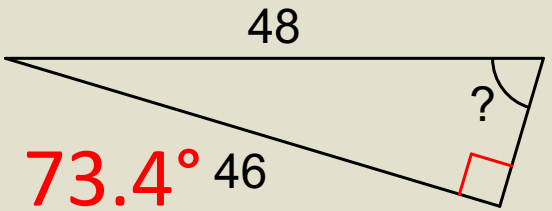
Practice Finding unknown angles

1.



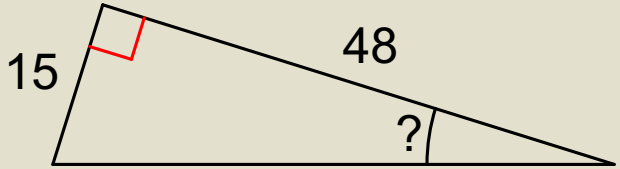
? = 26.5°

2.



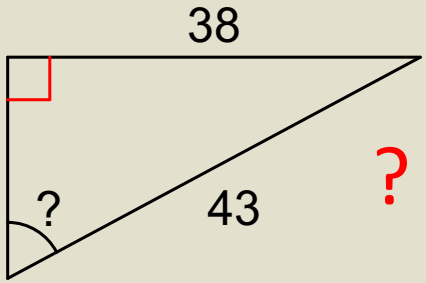
? = 73.4°

3.



? = 17.4°

4.



? = 62.1°

Objective: Use inverse trig functions to solve for angles.

Assignment:

Log in to Office 365/Teams

Complete the assignment:

Inverse Trig to Solve Unknown Angles (Week 2, Day 2)

SHOW ALL YOUR WORK!

Due to the frustrations of answers being marked wrong due to formatting etc, I've decided the assignments this week will just be uploaded so I can see all your work. I will also post the answers at the end of the document so you can check, basically more like we used to do in class.

NO WORK = NO CREDIT (now more important than ever)