

Applied Geometry

Lesson Ch8 Day5: Inverse Trig Functions (find the missing angle)

$$\sin \angle = \frac{O}{H} \quad \cos \angle = \frac{A}{H} \quad \tan \angle = \frac{O}{A}$$

Finding the Inverse Trig values: In other words we are finding the missing angle measure using the ratio of the sides!

We'll be using the INVERSE KEY on the calculator:

Sin<sup>-1</sup>

Cos<sup>-1</sup>

Tan<sup>-1</sup>

To find the measure of an angle for which the value of a trig ratio is known:

- Press the INVERSE KEY and enter the trig ratio.
- Example: if  $\cos A = 0.6293$ ,  
Find  $m\angle A$  to the nearest degree

ENTER:

DISPLAY:

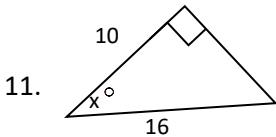
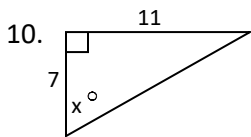
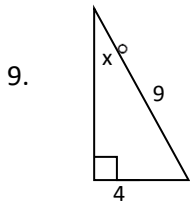
Round to nearest degree:  $m\angle A = 51^\circ$

Use your calculator to find each angle measure to the nearest degree.

- |   |   |   |  |
|---|---|---|--|
| 1. $\sin^{-1}(0.8)$<br>$\angle A =$ _____ | 2. $\cos^{-1}(.4226)$<br>$\angle A =$ _____ | 3. $\tan^{-1}(.8390)$<br>$\angle A =$ _____ | 4. $\cos^{-1}(.19)$<br>$\angle A =$ _____  |
| 5. $\sin^{-1}(2/5)$<br>$\angle A =$ _____ | 6. $\cos^{-1}(12/13)$<br>$\angle A =$ _____ | 7. $\tan^{-1}(15/8)$<br>$\angle A =$ _____  | 8. $\cos^{-1}(8/17)$<br>$\angle A =$ _____ |

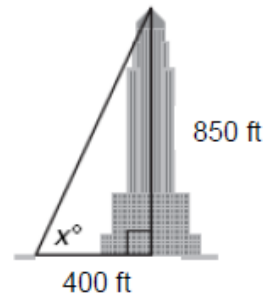
Find the missing angle measure to the nearest degree. Color or highlight the angle measure you are trying to find and then label the two sides given as opp., adj, or hyp. Show all work.

$$\sin \angle = \frac{O}{H} \quad \cos \angle = \frac{A}{H} \quad \tan \angle = \frac{O}{A}$$

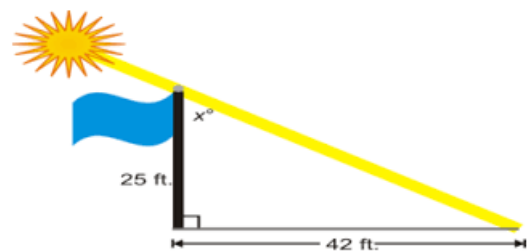


### Application Problems

12. Find the measure of angle  $x$  to the nearest degree using trig.

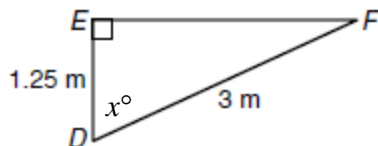


13. Find the measure of angle  $x$  to the nearest degree using trig.

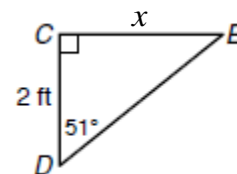


**Mixed Review:** Find the value of  $x$  in each problem below. If it is a missing angle measure, find it to the nearest degree. If it is a missing side length, find the value to the nearest tenth.

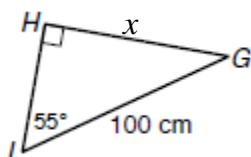
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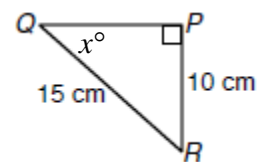
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16.



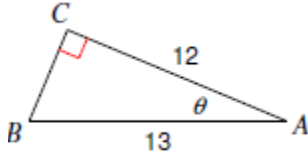
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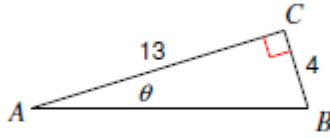
**CW/HW Ch 8 D5: Inverse Trig Functions**

For each of the following, find the missing angle labeled  $\theta$ , to the nearest degree.

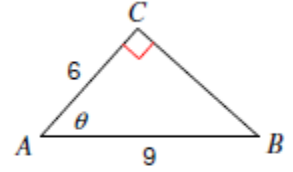
1.



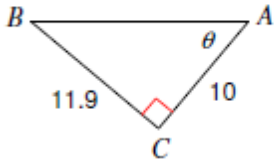
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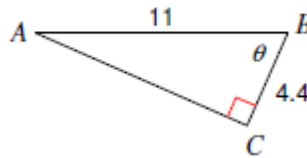
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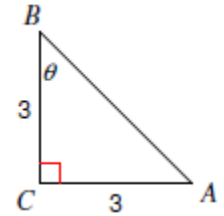
4.



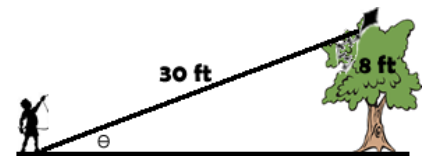
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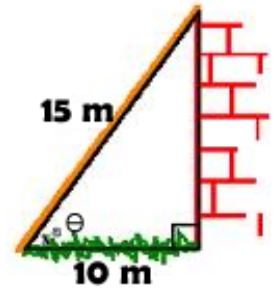
6.



7. You are flying a kite and have let out 30 ft of string but it got caught in a 8 ft tree. What is the angle of elevation to the location of the kite?

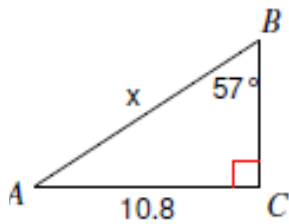


8. A 15 m pole is leaning against a wall. The foot of the pole is 10 m from the wall. Find the angle that the pole makes with the ground. (it is labeled  $\theta$  ).



Find the length of the missing side to the nearest tenth of a unit.

9.



10.

