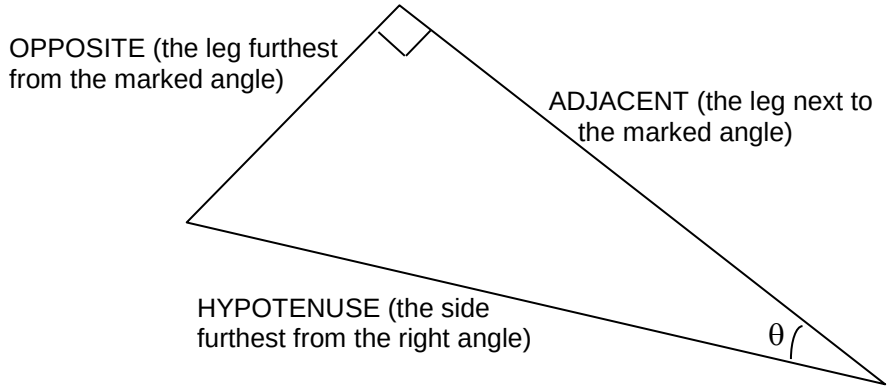
Right Triangle Trigonometry Activity

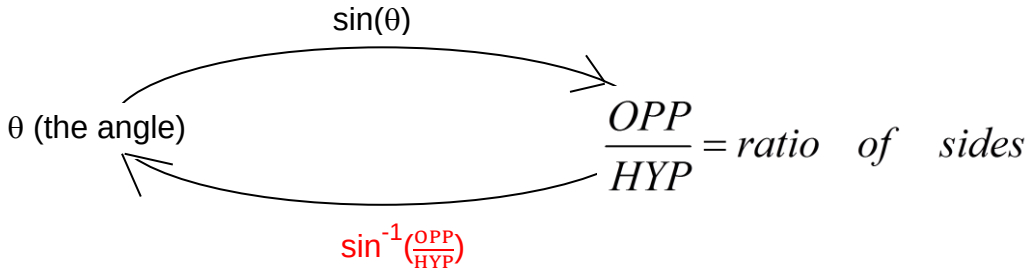
We name the sides of a right triangle in relationship to one of the non-90° angles, θ:



New definitions for the trig function:

sine $\sin(\theta) = \frac{opp}{hyp}$	cosecant $\csc(\theta) = \frac{1}{\sin(\theta)} = \frac{hyp}{opp}$
cosine $\cos(\theta) = \frac{adj}{hyp}$	secant $\sec(\theta) = \frac{1}{\cos(\theta)} = \frac{hyp}{adj}$
tangent $\tan(\theta) = \frac{\sin(\theta)}{\cos(\theta)} = \frac{opp}{adj}$	cotangent $\cot(\theta) = \frac{1}{\tan(\theta)} = \frac{adj}{opp}$

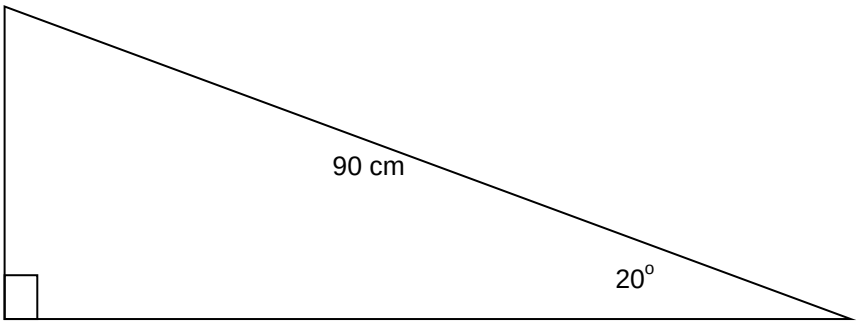
You can use the inverse of sine - written as $\sin^{-1}(x)$ or as arcsin(x) - to find an angle if you know the sides called opposite and hypotenuse on the triangle.

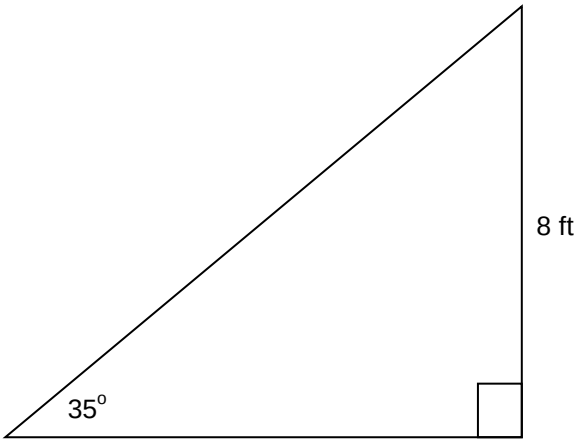


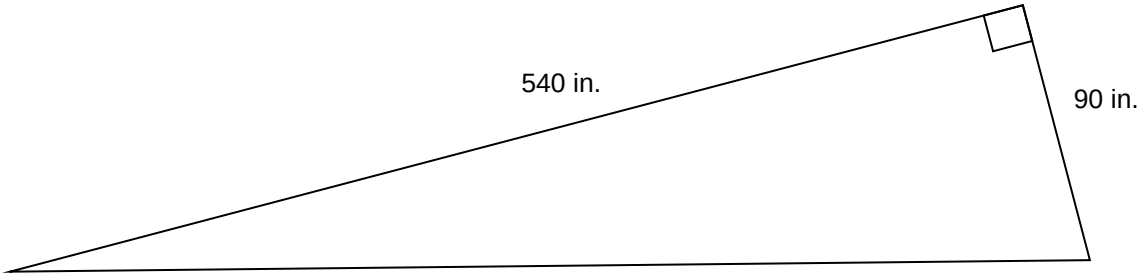
Similarly, cosine and tangent have inverses.

Advice for rounding numbers in this class and all math classes: **never round a number before the end of a problem -- it leads to errors!**

In-Class Examples: Solve the following triangles (use exact values until the last calculation wherever possible, round answers to the nearest hundredth):



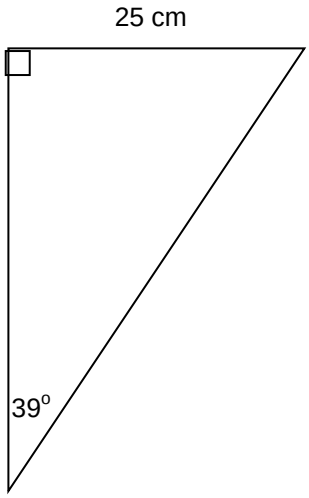




Right Triangle Trig Problems: (18 points) **NAME**_____

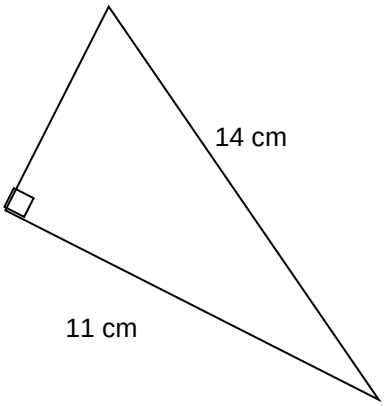
- For each triangle, solve for **all** the missing sides and angles.
- All angles are in degrees.
- Make sure you use the degree symbol, appropriate units, and round to the nearest 100^{th}.
- **Show work to the right side**. Write the answers in the appropriate location on each triangle:

(1)

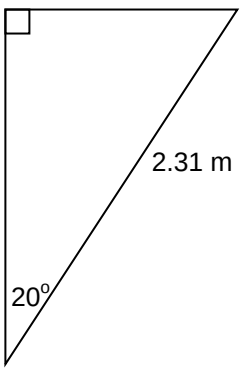


WORK:

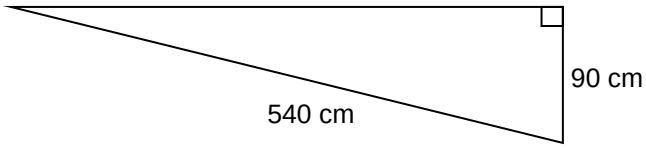
(2)



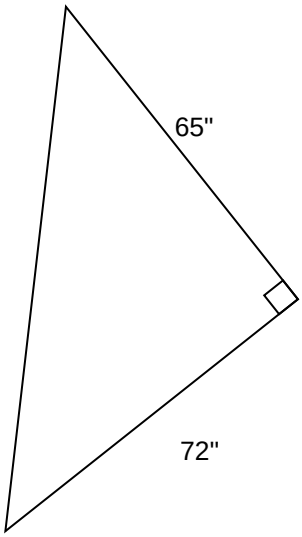
(3)



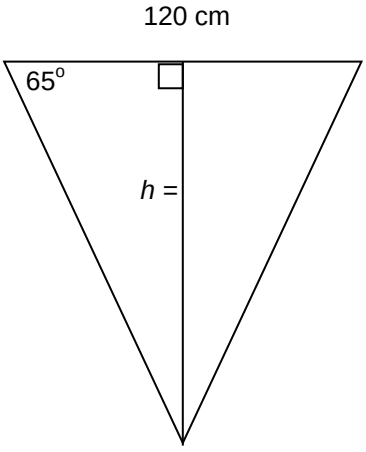
(4)



(5)



(6)



This is an **isosceles** triangle. Also find *h*, the height