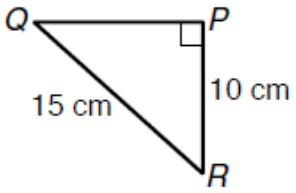
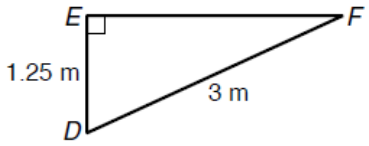
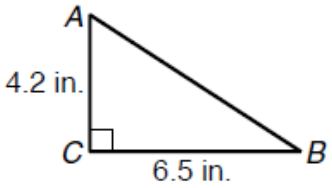
Geometry H
7.7 – Solving Right Triangles

Name: _____
Date: _____ Period: _____

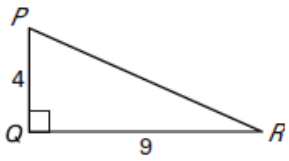
- I can use the inverse trigonometric ratios to find angle measures in right triangles.
- I can apply my knowledge of trigonometric ratios to solve right triangles.

If we know sine, cosine, or tangent ratio for an acute angle in a right triangle, we can use the ***inverse trigonometric function*** to find the measure of the angle.

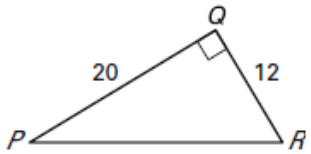
Inverse Trigonometric Functions	
Symbols	**Examples**
Inverse Sine *If* $\sin A = x \Rightarrow m\angle A = \sin^{-1} x$	
Inverse Cosine *If* $\cos B = x \Rightarrow m\angle B = \cos^{-1} x$	
Inverse Tangent *If* $\tan C = x \Rightarrow m\angle C = \tan^{-1} x$	

Example 1: Use inverse tangent to find angle measure

a) Find the measure of $\angle P$.



b)



Example 2: Use inverse sine and inverse cosine to find angle measures.

Let $\angle A$ and $\angle B$ be acute angles in a right triangle. Use a calculator to approximate the measure of $\angle A$ and $\angle B$ to the nearest tenth of a degree.

a) $\sin A = 0.19$

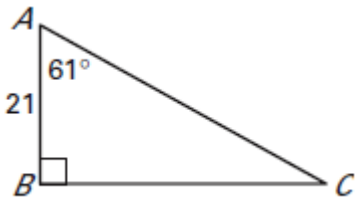
b) $\cos B = 0.56$

❖ When ***solving a right triangle***, your goal is to find the measures of all three angles and the lengths of all three sides.

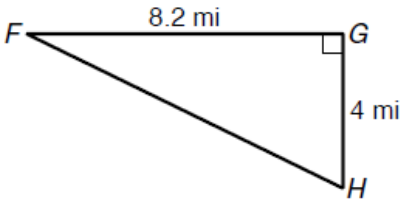
Example 3: Solve a right triangle

Solve the right triangle. Round decimal answers to the nearest tenth.

a)



b)



Example 4: Solve a real-world problem

You are building a track for a model train. You want the track to incline from the first level to the second level, 4 inches higher, in 96 inches. Is the angle of elevation less than 3°?