Inverse Trigonometric Functions: $\sin^{-1}$, $\cos^{-1}$, $\tan^{-1}$
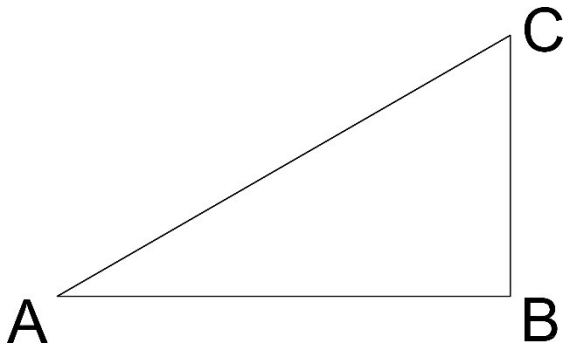
Objectives:

Understand that an inverse trig function is used to find an angle
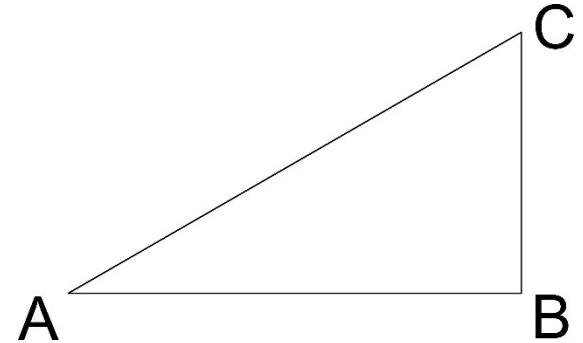
Know how to use your calculator

Review

- Label each side of the triangle as opposite, adjacent, or hypotenuse for the given angle.

∠A



∠C

Inverse Trigonometric Functions

- Sin, Cos, and Tan are used to find missing sides of right triangles. What if you need to find a missing angle?

- Inverse trigonometric functions are used when it is necessary to find a missing acute angle in a right triangle.

- The inverse trig functions are:
  - Arcsin (On the calculator look for $\sin^{-1}$)
  - Arccos (On the calculator look for $\cos^{-1}$)
  - Arctan (On the calculator look for $\tan^{-1}$)

Finding a Missing Angle

- Finding a missing angle using inverse trig functions is very similar to finding a missing side. Follow these steps:

1. Set up a sin, cos, or tan equation

   a. Identify the angle being used (This will be a variable)
   b. Identify the two sides being used

2. Use $\sin^{-1}$, $\cos^{-1}$, or $\tan^{-1}$ on both sides of the equation to solve for your missing angle.
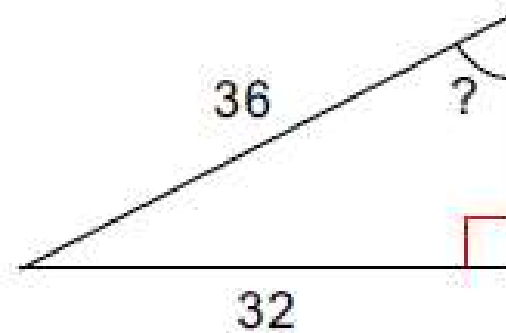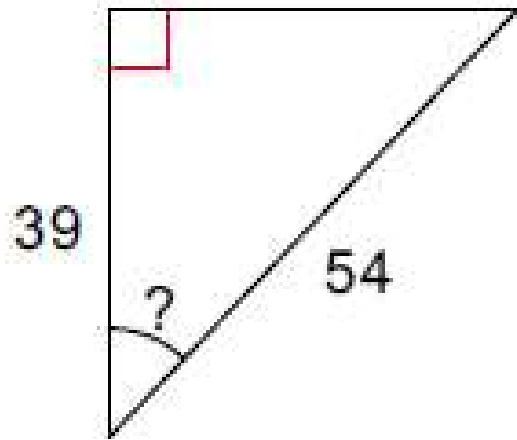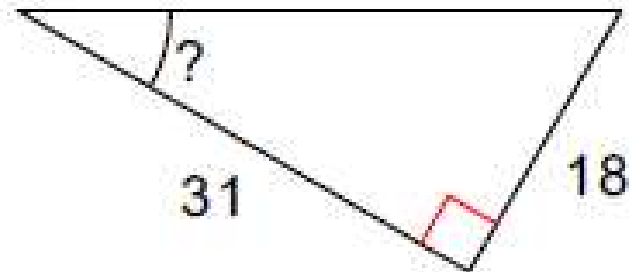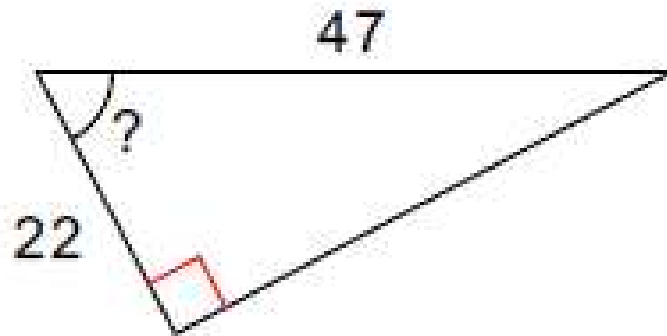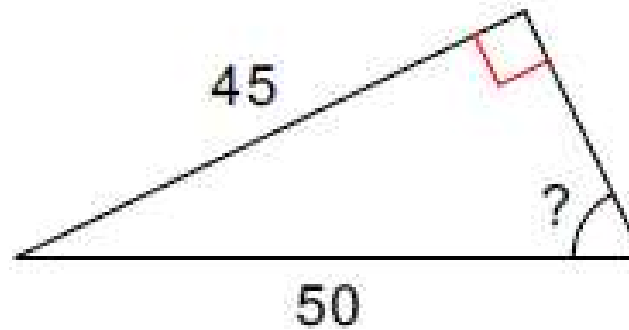
Example

- Find the size of the missing angle rounded to the nearest tenth.
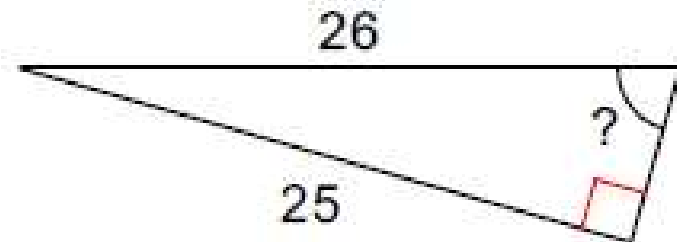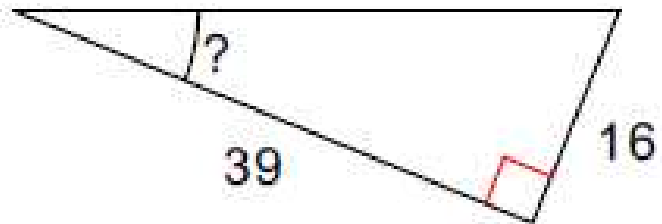
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Assignment

Worksheet 11.4 and XL11.4