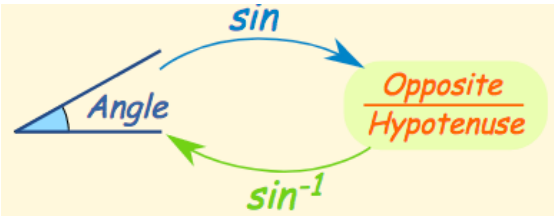
Lesson 3.3 - Solving for angles using Trig. Ratios

Learning Objectives: SWBAT

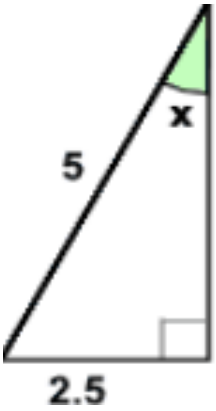
1. Use Inverse Trigonometric Ratios to solve for the missing angles of a right triangle

Making a connection

- In lesson 3.3, we used trig ratios to solve for missing side lengths of a right triangle. (we needed one side length and one acute angle)
- In this lesson, we are given information about the missing sides and we need to find the angle measures. To do this, we will be using the INVERSE TRIG function(s) on our calculator



Example - Solve for x in the triangle at right



Step 1 - Determine the proper Trig Ratio

- 5 is the Hypotenuse (H)
- 2.5 is opposite x (O)
- Since we are given O and H, we will use Sine

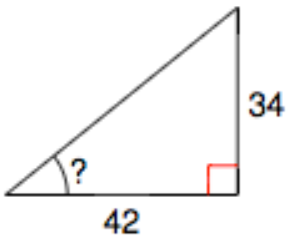
Step 2 - Create ratio equation

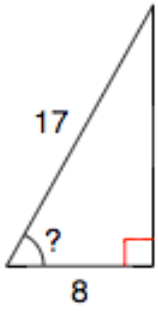
$$Sin\ x = \frac{2.5}{5}$$

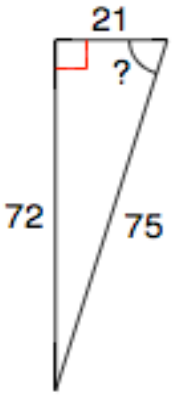
Step 3 - Use the Inverse function on your calculator to determine the angle measure:

$$\sin^{-1}\left(\frac{2.5}{5}\right) = x = 30^{o}$$

Your Turn - Solve for angle indicated in the triangles below to the nearest degree







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Practice

Find each angle measure to the nearest degree.

1) $\sin Z = 0.4848$

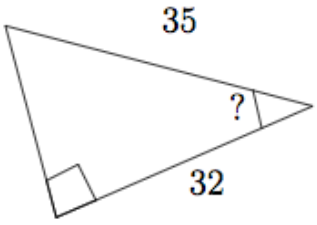
2) $\sin Y = 0.6293$

3) $\sin Y = 0.6561$

4) $\cos Y = 0.6157$

Find the measure of the indicated angle to the nearest degree.

5)



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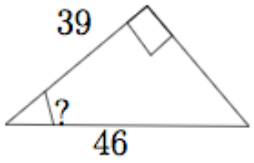

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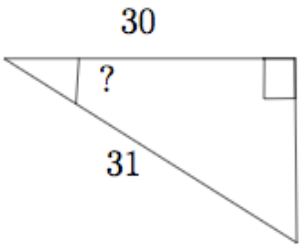

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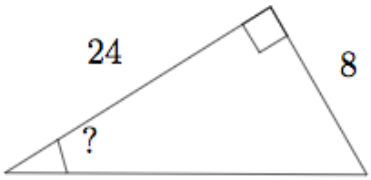

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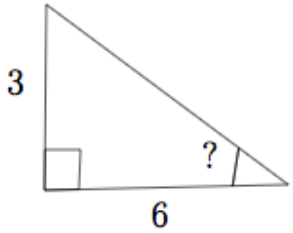

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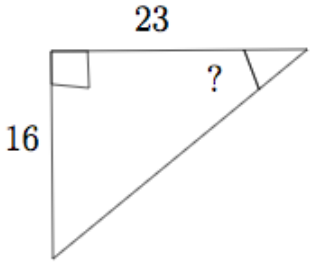

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Practice

Find the measure of each angle indicated. Round to the nearest tenth.

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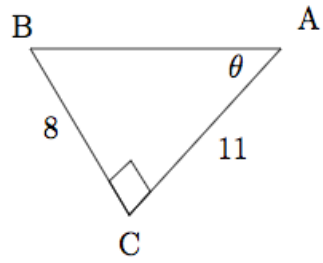

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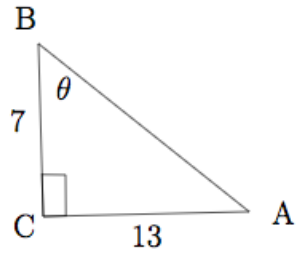

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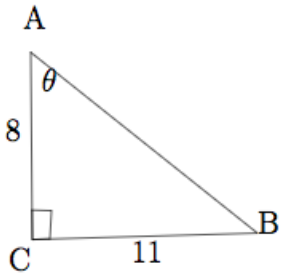

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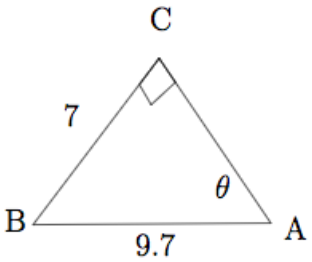

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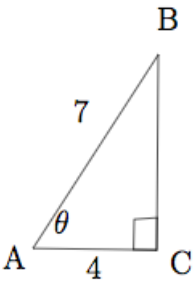

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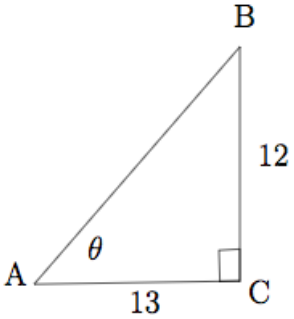

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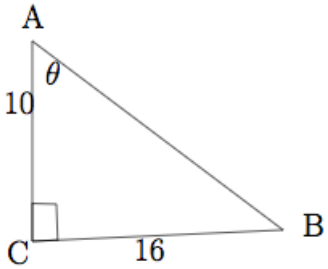

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