WELCOME

Folsom High

Chapter 8 Day 2: **Solving Triangles &**

Inverse Trig Functions

Warm-Up

1)   Solve for x

x

12

42^0
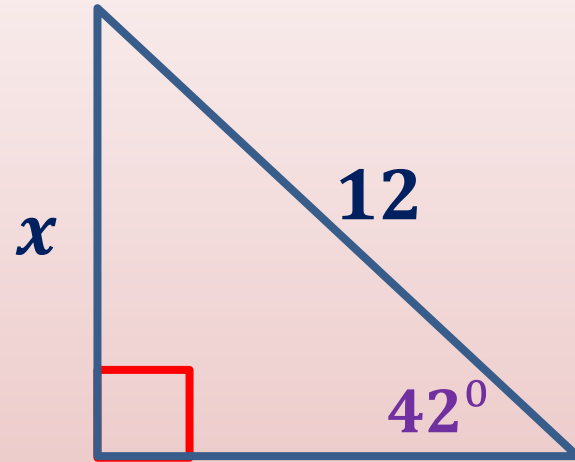
2) Use trig ratios to find the missing side length

8

x

45°

10

x

30°
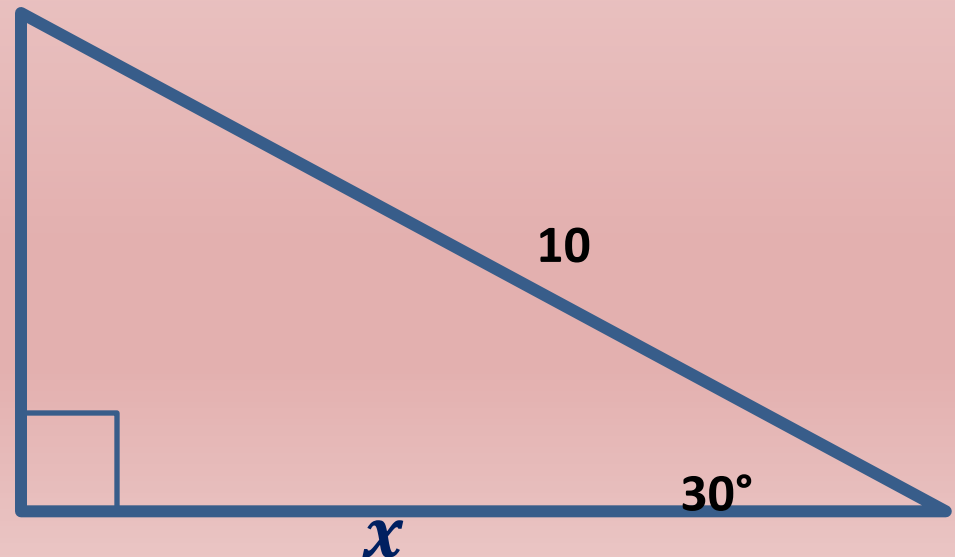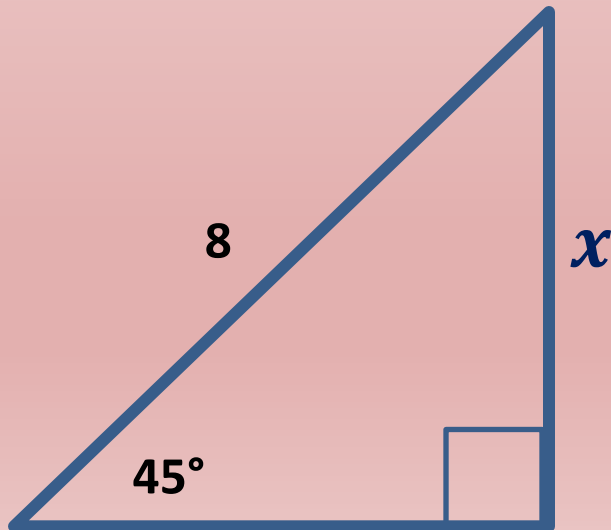
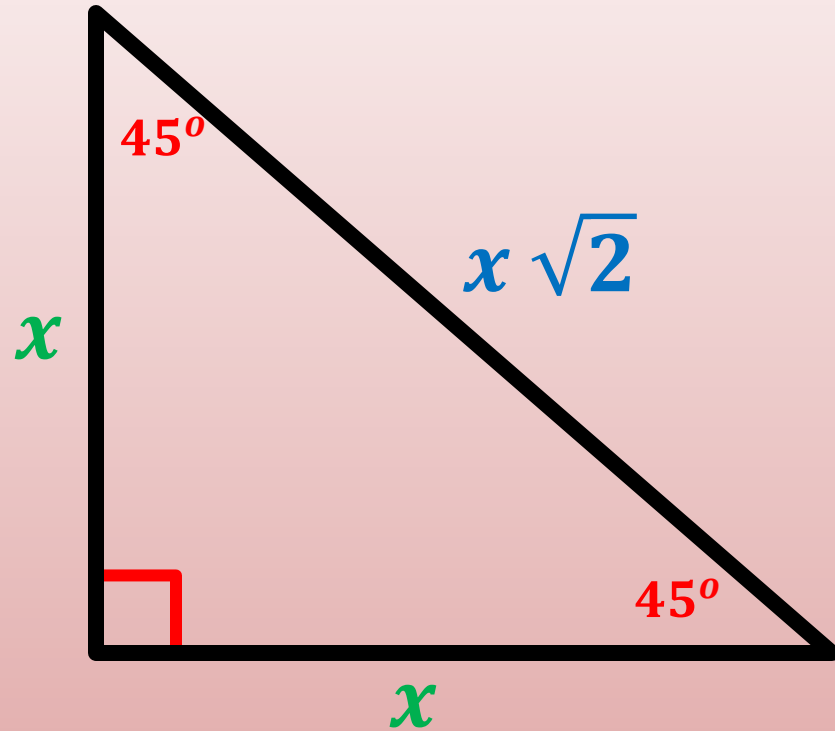# *Chap 8 Day 2 Learning Target*

- **Determine Trig Ratios to find missing angles by using Inverse Trig Functions.**
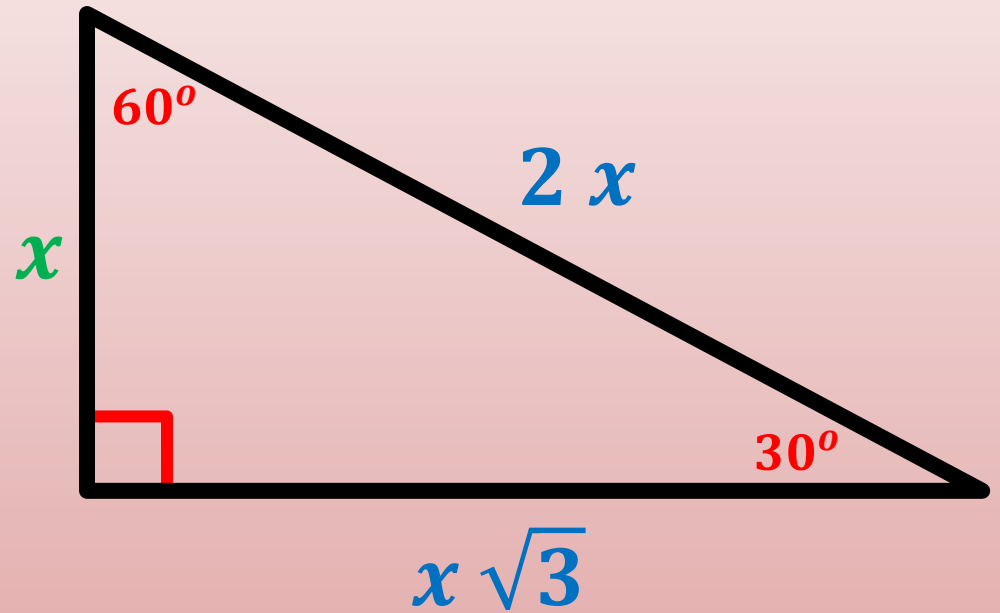
Special Right Triangles

$45^o - 45^o - 90^o\ \Delta$

45°

x

$x\sqrt{2}$

45°

x

Hypotenuse = $\sqrt{2} \cdot leg$

$30^o - 60^o - 90^o\ \Delta$

60°

x

$2x$

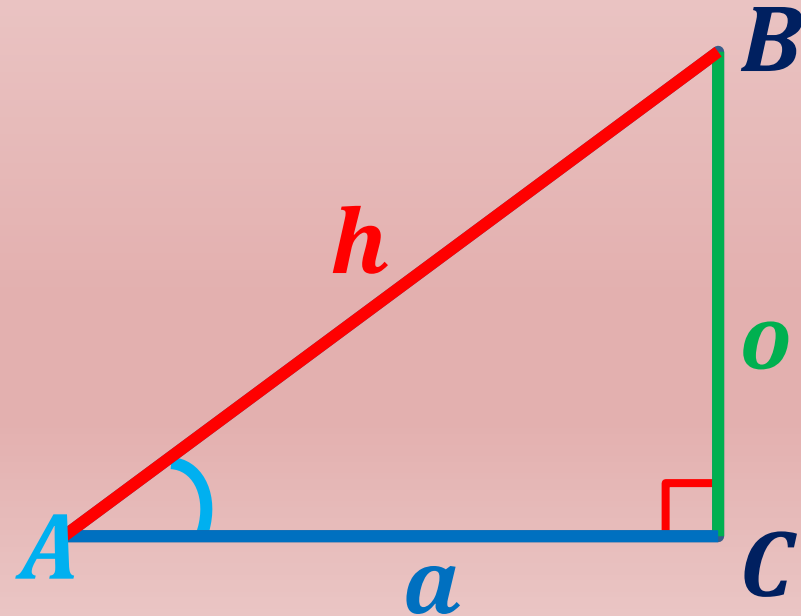30°

$x\sqrt{3}$

Longer Leg = $\sqrt{3} \cdot Short\ leg$
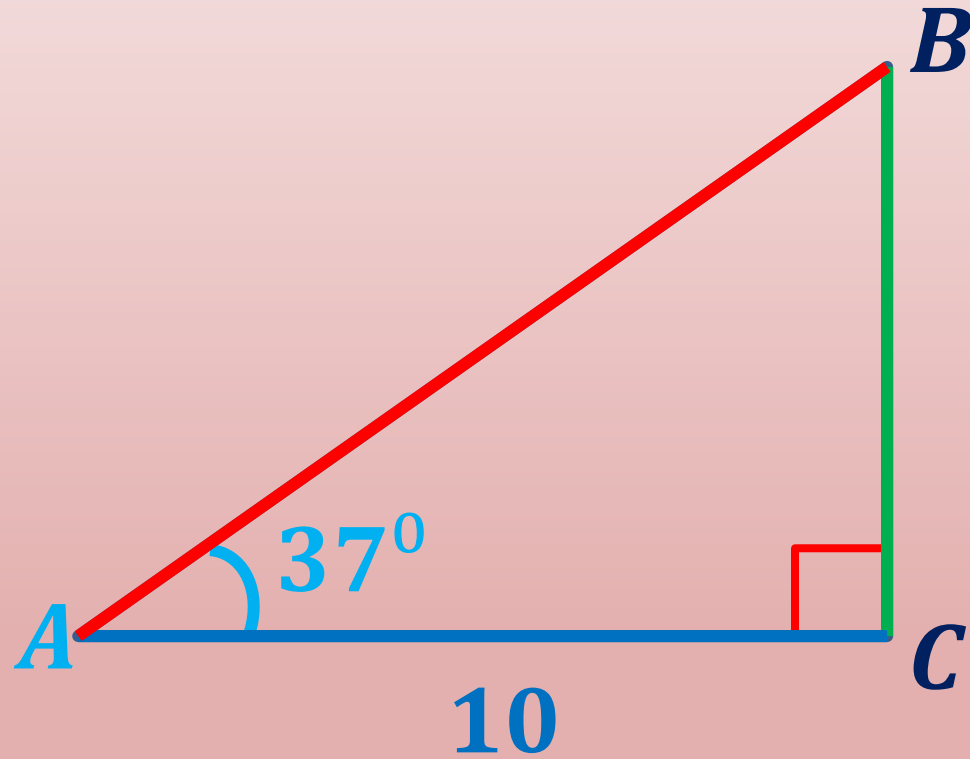*Hypotenuse = $2 \cdot Short\ leg$*

Soh - Cah - Toa

$$sin\,A = \frac{o}{h}$$

$$cos\,A = \frac{a}{h}$$
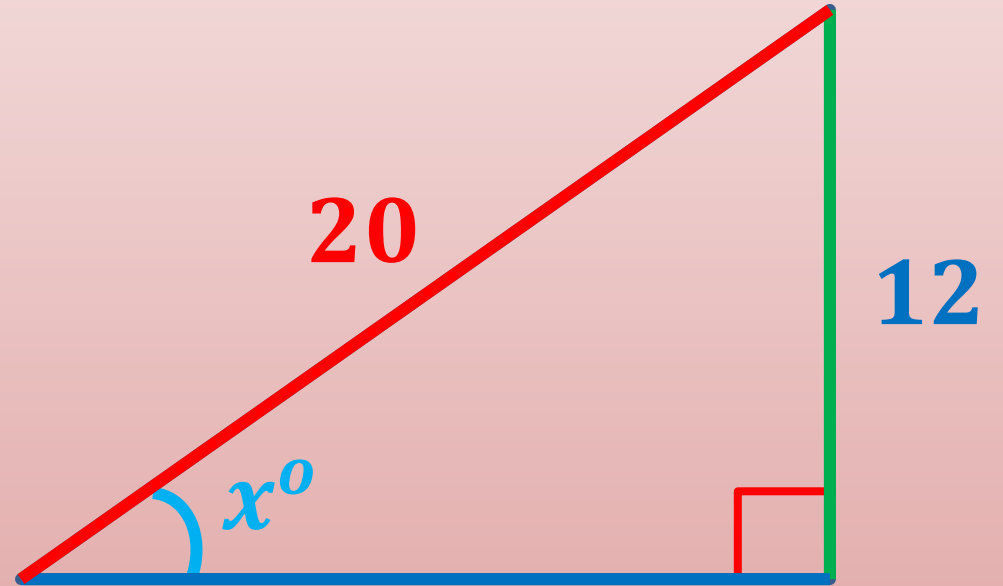
$$tan\,A = \frac{o}{a}$$

Day 1 Review

How do we find a missing angle?

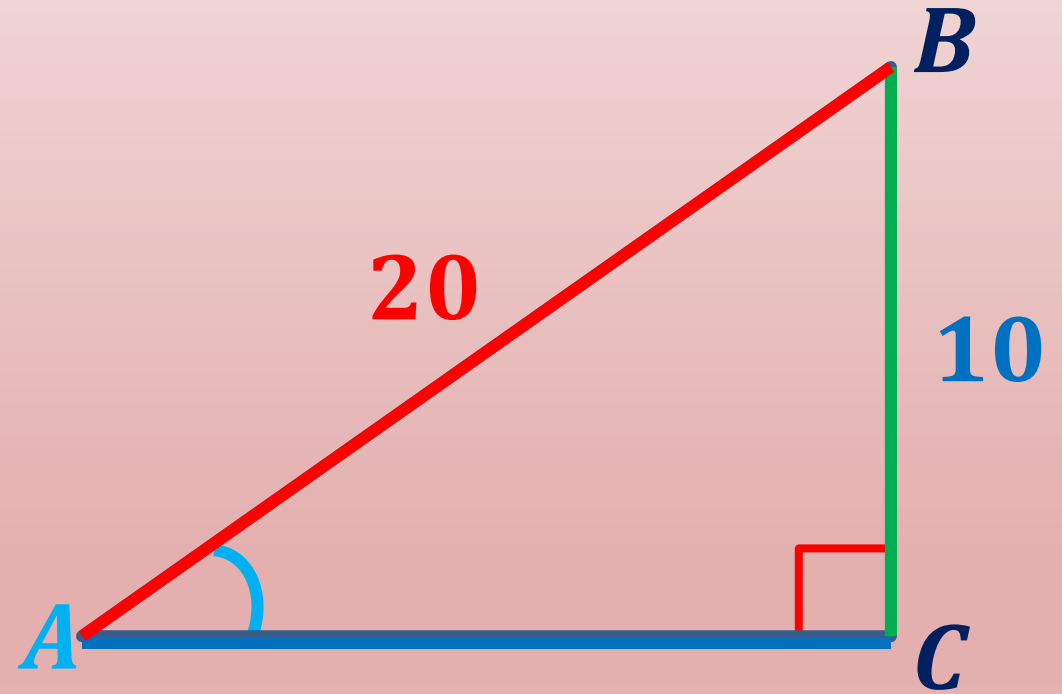$$sin(x^o) = \frac{12}{20}$$

20

12

x^o

Inverse Trig Functions

We use this to help us find missing angles in right triangles.
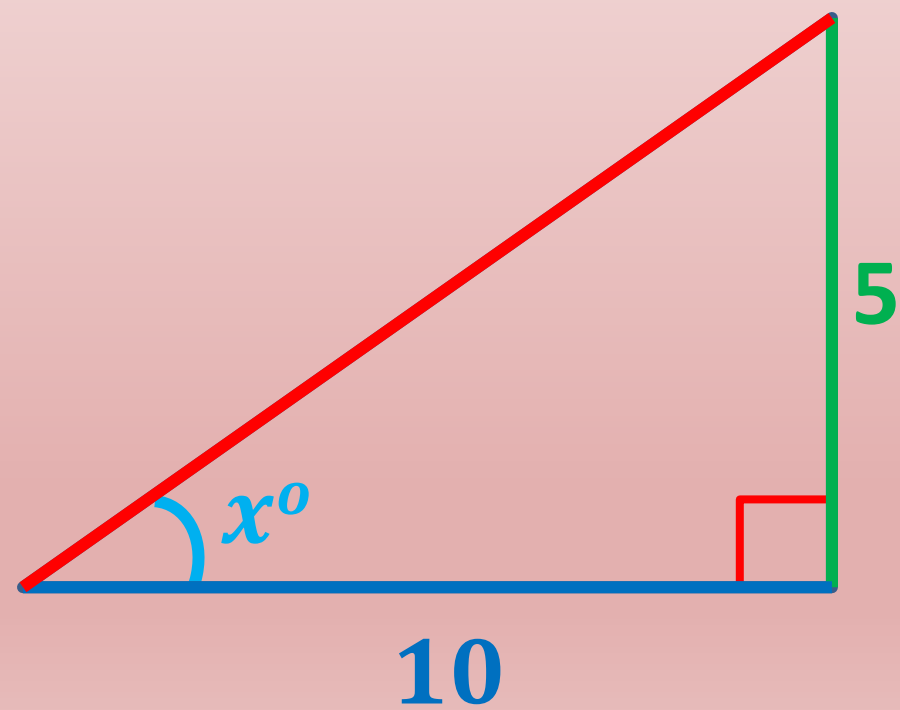
$$\text{Sin}(x^o) = \frac{12}{20}$$
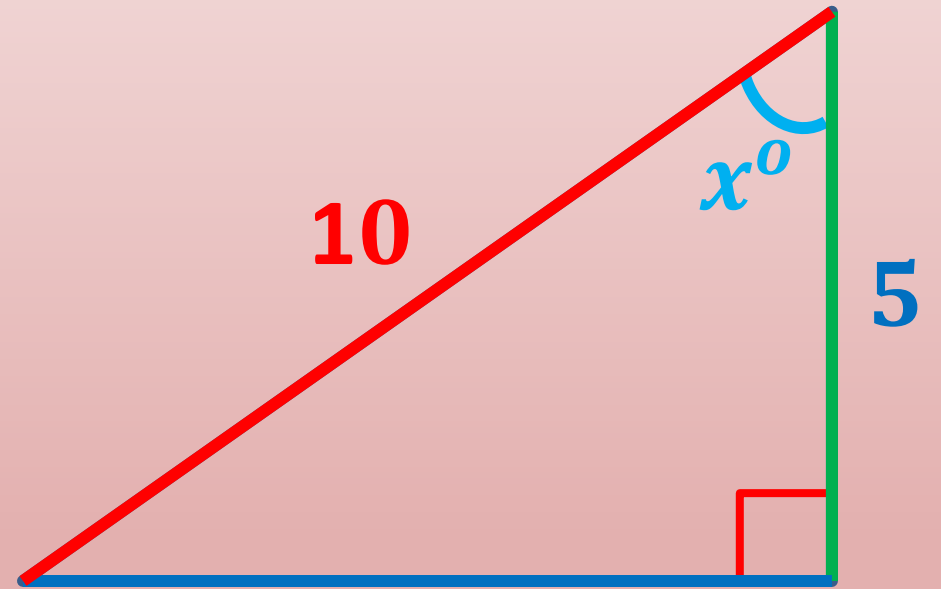
Solving Given 2 Sides

Given two sides of a right triangle we can use the inverse sine function (sin^{-1}) to find the missing angle.
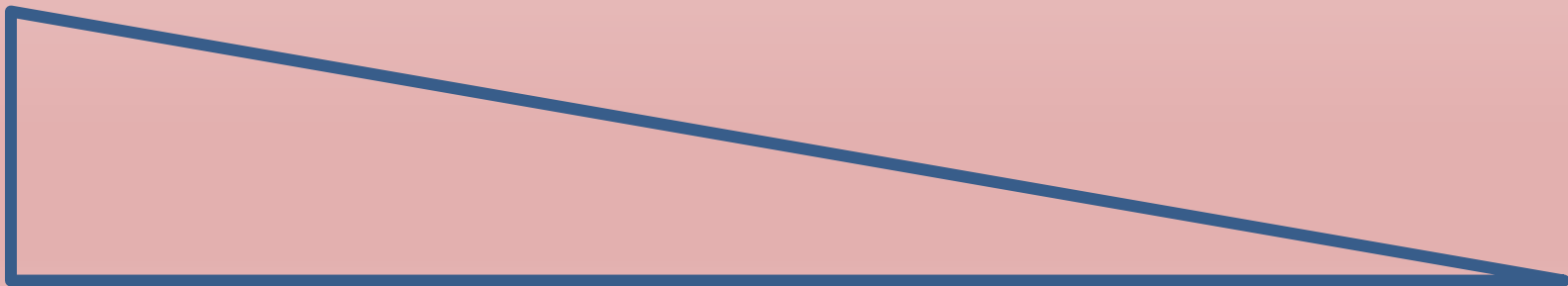

Also works for $\angle B$ using cos⁻¹
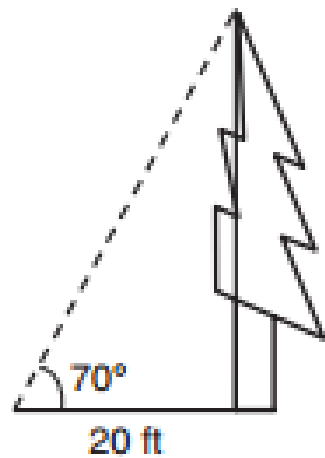
5

5

x^o

10

What do we do now?

Joe is building a deck off the side of his house and wants the put in a ramp. He knows the deck is 1 ft high and that he wants the ramp to start 5 ft away from the deck. What angle will the ramp make with the ground?

To determine the height of a tree, a botanist makes the following diagram. What is the height of the tree?

70°

20 ft

Rennie is walking her dog. The dog's leash is 12 feet long and is attached to the dog 10 feet horizontally from Rennie's hand, as shown in the diagram. What is the angle formed by the leash and the horizontal at the dog's collar?

Leash

12 ft

?

10 ft
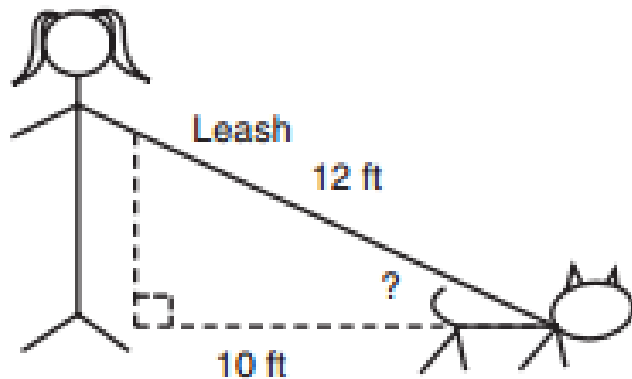
Collin is attempting a trick shot where he stands on a 20ft building and throws a ping pong ball into a cup. If he can throw the ball at a 28º angle how far from the base of the building should he place the cup. (Assume no wind)