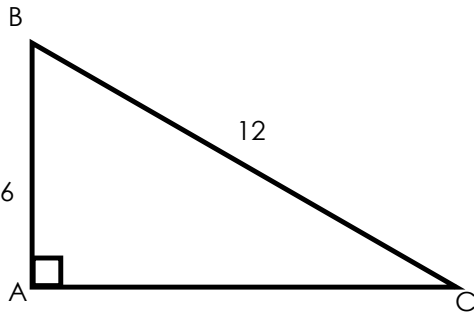# 8.3 Solving For Angles With Trigonometric Ratios
Students will be able find the ratio's of trigonometric ratio's

Finding Angle Measures With Trigonometry
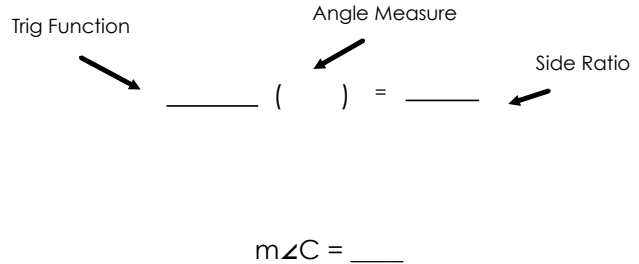
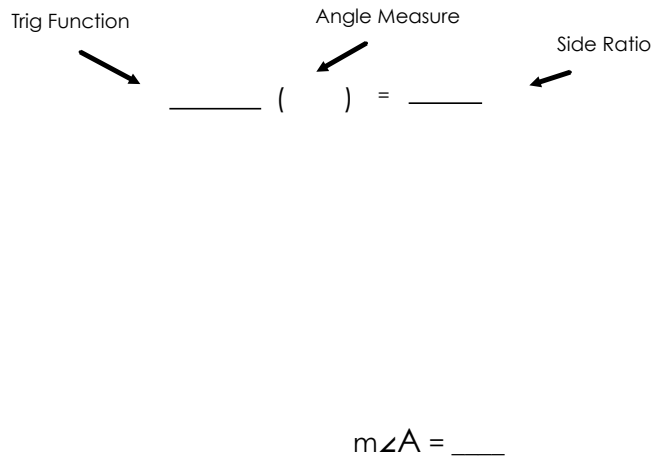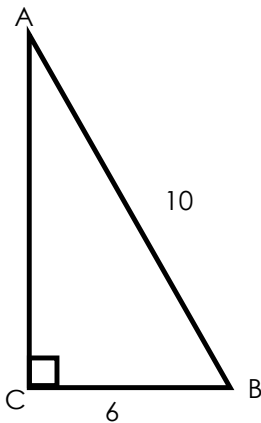If you know two _____ lengths of a right triangle, you can find any missing angle in the triangle
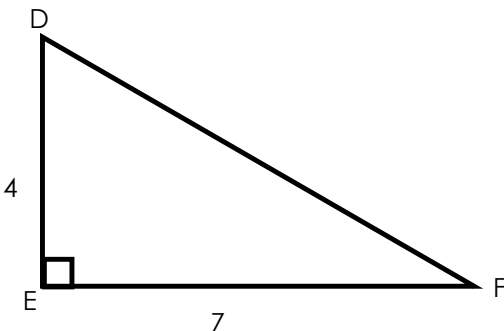
Steps To Find Missing Side

Step 1: Identify Trig Function
Step 2: Step up ratio
Step 3: Solve

Find the m∠C

B

12

6

A

C

Trig Function

Angle Measure

Side Ratio

_____ ( ) = _____

m∠C = ____

Find the m∠A. Round your answer to the nearest hundredth.

Trig Function

Angle Measure

Side Ratio

_____ ( ) = _____

A

10

C   B
   6

m∠A = ____

Find the m∠D. Round your answer to the nearest hundredth.

D

4

E

7

F

m∠D = ____

Ron and Francine are building a ramp for performing skateboard stunts, as shown in the accompanying diagram. The ramp is 7 feet long and 3 feet high. What is the measure of the angle, x, that the ramp makes with the ground, to the *nearest tenth of a degree?*

7 ft   3 ft $x°$
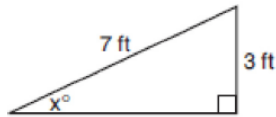
Steps To Find Missing Side

Step 1: Identify Trig Function
Step 2: Step up ratio
Step 3: Solve

Trig Function   Angle Measure   Side Ratio

_____ (   ) = _____

A 20 foot ladder is leaning against a wall. The distance from the base of the ladder to the wall is 15 feet. **What is the angle of elevation of the ladder?**

Trig Function   Angle Measure   Side Ratio
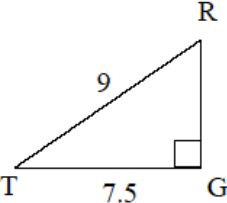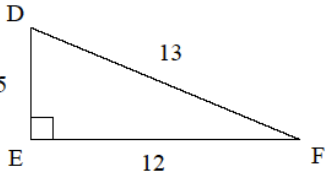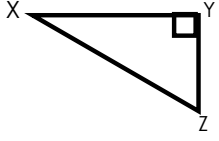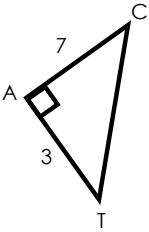
_____ (   ) = _____
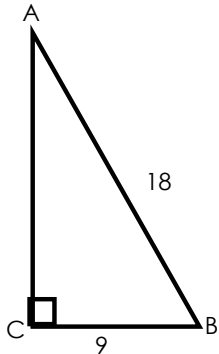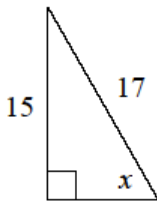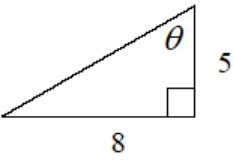
Draw a picture!

If a tree 28 meters tall casts a shadow 32 meters long, what is the angle of elevation of the Sun to the *nearest degree?*

Draw a picture!

Independent Practice
Round all answers to the nearest hundredth!

Find the m∠B

A
18
C ⊡ B
9

Trig Function

Angle Measure

Side Ratio

_____ ( ) = _____

m∠B = _____

Find the measure of x

17
15
x

x = _____

Find the measure of θ

θ
5
8

θ = _____

Find the m∠T

R
9
T   7.5   G

m∠T = _____

Find the m∠D

D
13
5
E   12   F

m∠D = _____

In ▲XYZ, YZ = 10 and XZ =17. Find the m∠X

X   Y
Z

m∠X = _____

In ▲CAT, CA = 7 and AT =3. Find the m∠ACT

C
7
A
3
T

m∠ACT = _____

The diagram below shows the path a bird flies from the top of a 9.5-foot-tall sunflower to a point on the ground 5 feet from the base of the sunflower.
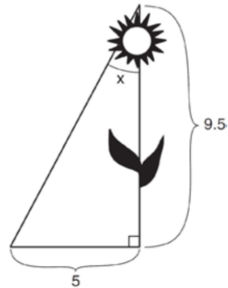
To the *nearest tenth of a degree*, what is the measure of angle *x*?

A person standing on level ground is 2,000 feet away from the foot of a 420-foot-tall building, as shown in the accompanying diagram. To the *nearest degree*, what is the value of *x*?
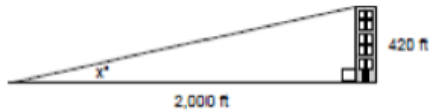
A 28-foot ladder is leaning against a house. The bottom of the ladder is 6 feet from the base of the house. Find the measure of the angle formed by the ladder and the ground, to the *nearest degree*.