# Algebra 2 Right Triangle Trigonometry Name:

**Trigonometric Functions**

 sine $\sin(A= \frac{opposite}{hypotenuse})$

opposite

osite

hypotenuse

 cosine $\cos(A= \frac{adjacent}{hypotenuse})$

$$A$$

adjacent

 tangent $\tan(A= \frac{opposite}{adjacent})$

$$A$$

 SOH – CAH – TOA

**Using the Trigonometric Functions**

Find each of the following:

 $\sin(A)=$

12

$$A$$

13

5

osite

 $\cos(A)=$

 $\tan(A)=$

**Finding the missing *side* of a triangle using trigonometric functions**

$$28$$

$$x$$

$$42ᵒ$$

$$a$$

$$22ᵒ$$

$$52$$

$$15.3$$

$$63ᵒ$$

$$y$$

**Finding the missing *angle* of a triangle using trigonometric functions**

$$23.2$$

$$35.7$$

$$A$$

$$0.23$$

$$A$$

$$0.75$$

**Applications**

 *A 12-ft ladder leans against a wall.*

*The angle the ladder forms with the floor is* $77ᵒ$*.*

*How far up the wall does the ladder reach?*

1. draw a picture of the situation
2. find the right triangle
3. solve the triangle for the missing part

**Angle of Elevation**

$$θ$$

horizon

Example: A tree cast a 53-ft shadow when the angle of elevation of the sun is $62ᵒ$. Find the height of the tree.

**Two Triangles**

$$b$$

$$a$$

$$37ᵒ$$

$$65ᵒ$$

$$6$$