Geometry Honors   Mathematician: _____
Unit 8: Similarity within Triangles   Period:_____
8.3b Trig Ratios (tan, sin, and cos)

LEVEL: EMERGING

Directions: Find the value of the given variable by using trigonometric ratios.

1)

n 3

$45°$

$n =$ _____

2)
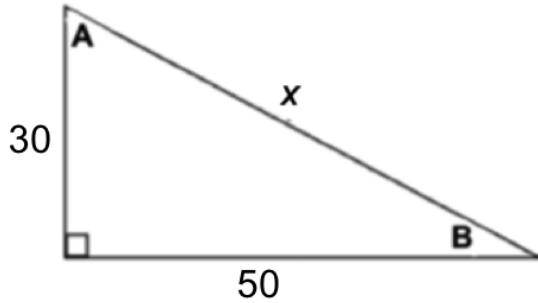
$60°$ 20

x

$a =$ _____
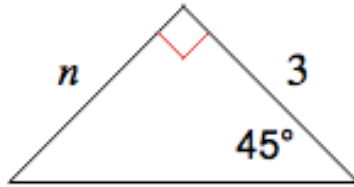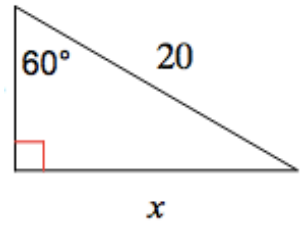
LEVEL: PROFICIENT

Directions: Find the exact value of the following trigonometric ratios.

3)

A

x

30

B

50

(a) $\sin A° =$ (d) $\sin B° =$

(b) $\cos A° =$ (e) $\cos B° =$

(c) $\tan A° =$ (f) $\tan B° =$

4)

A

40

12

B

x
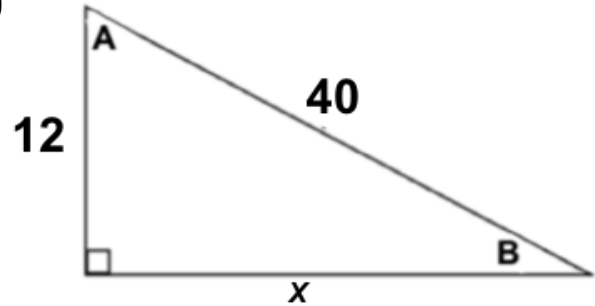
(a) $\sin A° =$ (d) $\sin B° =$

(b) $\cos A° =$ (e) $\cos B° =$

(c) $\tan A° =$ (f) $\tan B° =$

Directions: Find the value of the given variables.

5)

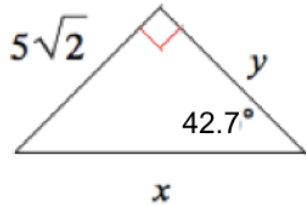u

$4\sqrt{2}$

$48°$

v

$u =$ _____ $v =$ _____

6)

$55°$ u

5

v

$u =$ _____ $v =$ _____

7)

$5\sqrt{2}$

$42.7°$

x

y

$x = \underline{\qquad}$ $y = \underline{\qquad}$

8)

a

3

$34.3°$

b

$a = \underline{\qquad}$ $b = \underline{\qquad}$

LEVEL: MASTERY

9)

A C   D

E

B
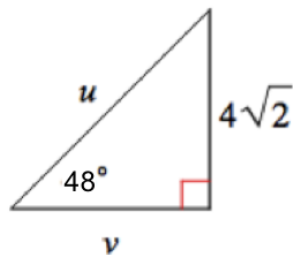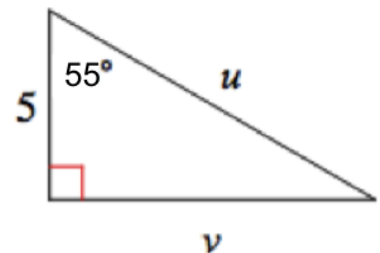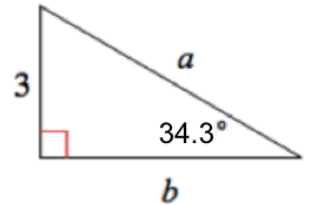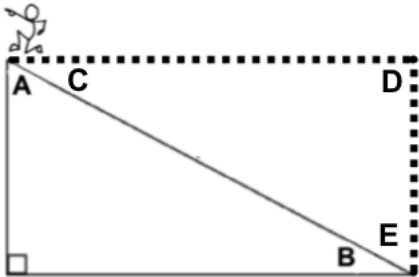
(a) If you are standing on top of the triangle (at A), which variable represents the angle of depression?

(b) Which variable represents the angle of elevation?

Directions: Draw a picture that represents the given scenario. Then solve for the indicated length. Don't forget to include units in your answer!

10) Angie looks up 25° to see an airplane flying toward her. If the plane were flying with an altitude of 3.5 miles, how far would Angie have to walk to be directly under the plane?

Answer: _____

11) A pole casts a shadow of 11 feet. If the angle of elevation with the ground is 31°, what is the approximate height of the pole?

Answer: _____

12) Lauren is standing at the top of a lookout tower that is 45 feet tall. When she looks down at an angle of 66°, she sees Evan coming toward her. What is the straight-line distance between Lauren and Evan?

Answer: _____

13) A ladder leans up against the side of a house at an angle of 32°. If the base of the ladder is 4.5 feet away from the base of the house, how long is the ladder?

Answer: _____