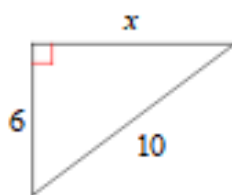Pythagorean Theorem Practice   Name_____ Block_____
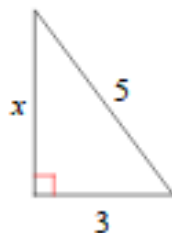
Find the missing side of each triangle. Round your answers to the nearest tenth if necessary.
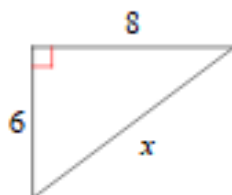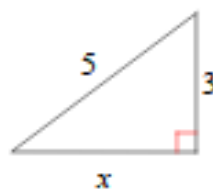
1)

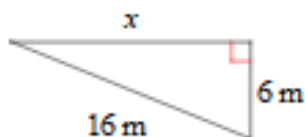x

6

10

2)

x

5

3

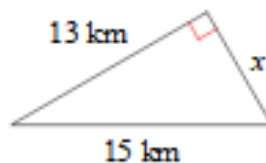3)

8

6

x

4)

5

3

x

Find the missing side of each triangle. Leave your answers in simplest radical form.

5)

x

6 m

16 m

6)

13 km

x

15 km

7)

x

$\sqrt{65}$ ft
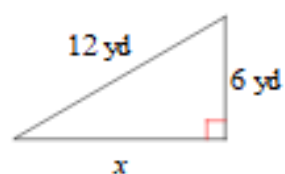
16 ft

8)

16 mi

x

12 mi

9)

x

4 km

$\sqrt{226}$ km

10)

12 yd

6 yd

x

11)

x

7 m

$\sqrt{26}$ m

12)

12 ft

9 ft

x

13)

6 m

$\sqrt{26}$ m

x

14)

15 m

x
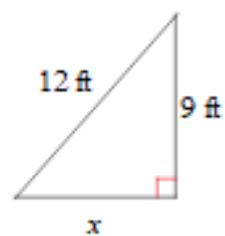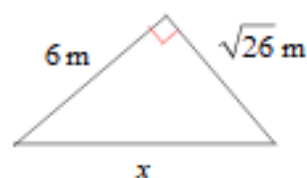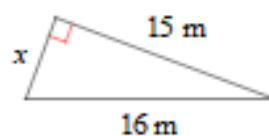
16 m
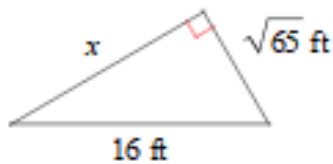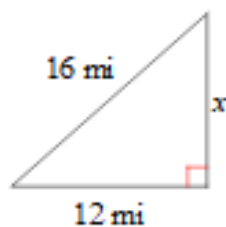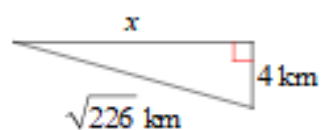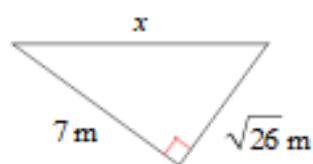
Find the area of each triangle. Round intermediate values to the nearest tenth. Use the rounded values to calculate the next value. Round your final answer to the nearest tenth.

15)

8

4

4

16)

12

12

17.6

17)

10

10

8.6

18)

5

5

2.2

Right Triangle Trigonometric Equations Name_____
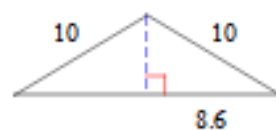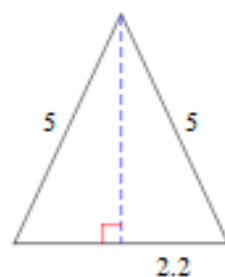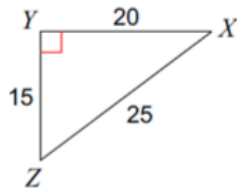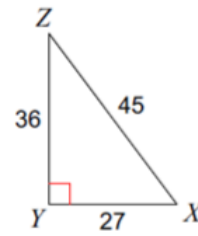
Find the value of the sine, cosine, and tangent of both acute angles in each triangle.

1)

Y — 20 — X, 15, 25, Z

2)

Z, 36, 45, Y — 27 — X

3)
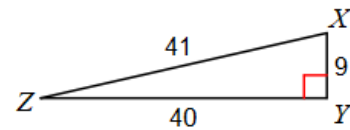
C — 21 — B, 35, 28, A

4)

Y, 30, 40, X — 50 — Z

5)

A, 13, 12, C — 5 — B

6)

X, 41, 9, Z — 40 — Y

7)

Z — 20 — Y, 29, 21, X

8)

Y, 18, 24, X — 30 — Z

Name_____ Date_____ Block_____ Right Triangle Trig.
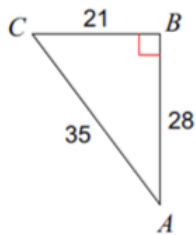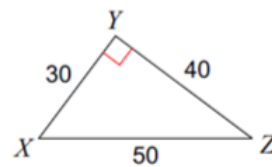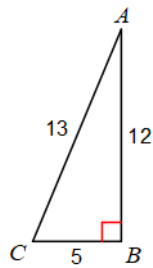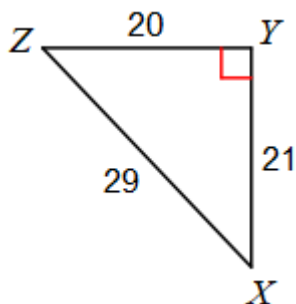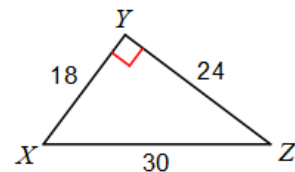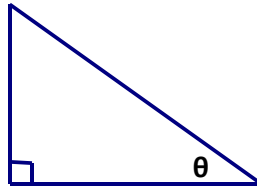
1. Given the following trigonometric values, label the triangle's sides and fill in the blanks.

$\sin \Theta = \dfrac{40}{41}$ $\tan \Theta = \dfrac{40}{9}$

$\cos \Theta =$ _____

θ

$\sin(90- \Theta) =$ _____ $\cos(90- \Theta) =$ _____ $\tan(90- \Theta) =$ _____

2. Given the triangle below, find the length missing side. Then answer the questions about the triangle.

θ
37
12

Missing side length = _____

$\sin \Theta =$ _____ $\cos(90- \Theta) =$ _____

$\cos \Theta =$ _____ $\dfrac{\sin \Theta}{\cos \Theta} =$ _____ $\tan(90- \Theta) =$ _____
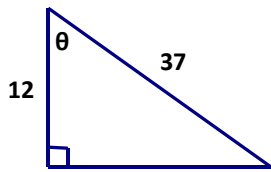
3. Given the $\sin \theta = \dfrac{3}{5}$, label the picture.

Missing side length = _____

θ

$\cos \theta =$_____ $\sin(90 - \theta) =$_____
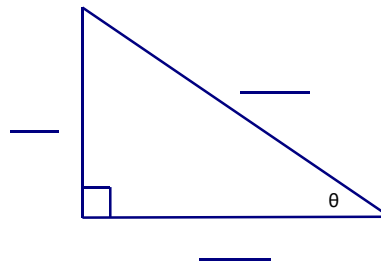
4. Given $\tan \theta = \dfrac{7}{24}$, draw a right triangle and find $\sin \theta$ & $\cos \theta$.

5. Given $\sin \theta = \dfrac{8}{17}$ $\cos \theta =$ _____ $\tan \theta =$ _____

$\sin (90-\theta) =$ _____ $\cos (90-\theta) =$ _____

$\tan (90-\theta) =$ _____

Geometry

Name_____

Right Triangle Trigonometry

Date_____ Period_____

Find the missing side. Round to the nearest thousandth (third decimal place).

1)

71° x

19

2)

x

11   46°

3)

13

67°

x

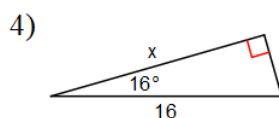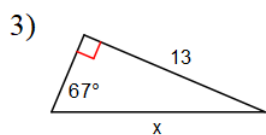4)

x   16°

16
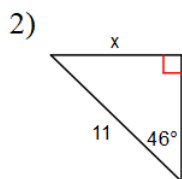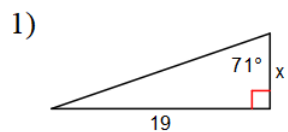
5. An observation tower is 75 m high. A support wire is attached to the tower 20 m from the top. If the support wire and the ground form an angle of 46 degrees, what is the length of the support wire, to the nearest tenth?
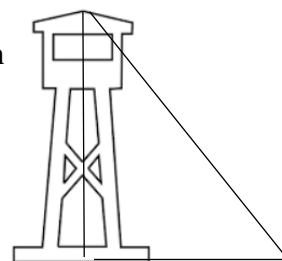
6. A 12 foot slide is attached to a swing set. The slide makes a 65° angle with the swing set. What is the height to the top of the slide?

9)

14

x

34°

10)

27°

11

x

11)

x

50°

14

12)

14

18°

x
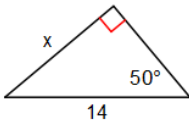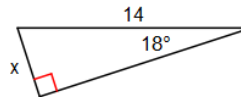
Find the length of the side labeled x. Round intermediate values to the nearest tenth. Use the rounded values to calculate the next value. Round your final answer to the nearest tenth.

13)

51° 57° x

30

14)
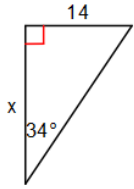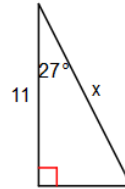
x

24°   32°

36

15)

53°

28

65°

16)

32   50° 58°

x
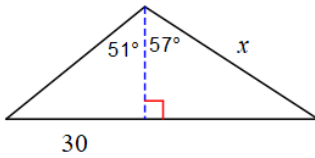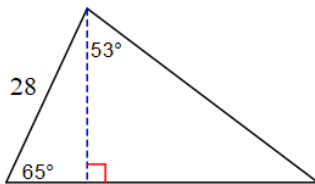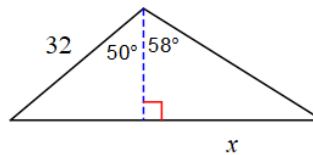
17) A surveyor needs to find the distance BC across a lake as part of a project to build a bridge. The distance from point A to point B is 325 feet. The measurement of angle A is 42° and the measurement of angel B is 110°. What is the distance BC across the lake to the nearest foot?

A   325 ft   B

42°   110°

C

Property of Complementary Angles in Right Triangles

1. In $\triangle\,MNO$, where O is a right angle, what trig. function is congruent to $\cos(M)$?

2. In $\triangle\,QRS$, where R is the right angle, what trig. function is congruent to $\sin(Q)$?
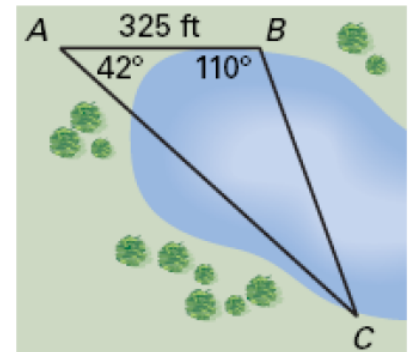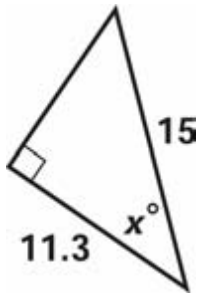
3. The $\cos(A) = \frac{3}{5}$ in $\triangle\,ABC$. What is the $\sin(B)$ if $\angle C$ is the right angle?

4. The $\cos(38^o)$ is equal to what other trigonometric function?

5. In $\triangle\,HIJ$, the $\sin(J) = \frac{\sqrt{3}}{2}$. What is the $\cos(H)$ if $m\angle I = 90°$?

6. What trigonometric function is equal to $\sin(56^o)$?

7. What trigonometric function is equal to $\cos(82^o)$?

8. The $\sin(\theta)$ is equal to what trigonometric function?

9. If the $\cos(60^o) = \frac{1}{2}$ what does the $\sin(30^o)$ equal?

10. If the $\sin(45^o) = \frac{\sqrt{2}}{2}$, what does the $\cos(45^o)$ equal?
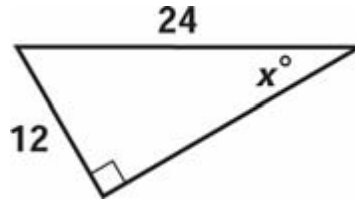
Inverse Trigonometry

Find measure of the indicated angle. Round to the 3rd decimal place.

1.

15
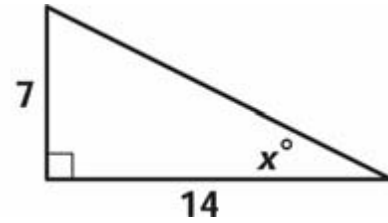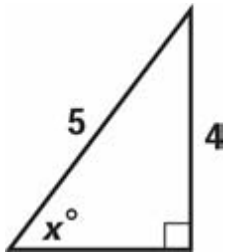
11.3

x°

X = _____

2.

24

12

x°

X = _____

3.

7

14

x°

X = _____

4.

5

4

x°

X = _____

5.

28

x°

25

X = _____

6.

9

3

x°
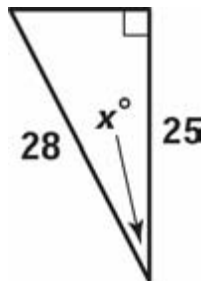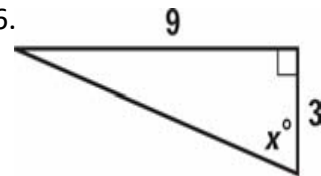
X = _____

7.   An airplane is flying at a height of 2 miles above the ground. The distance along the ground from the airplane to the airport is 5 miles. What is the measure of the angle from the airport to the airplane?

8. A tower is 125 ft tall and uses 200 ft long support wires attached to the ground. What is the angle from the ground that would be necessary to use these support wires?

Solve the following triangles. (Find all missing pieces)

1.

12
61°

2.

7
5

3.

23
29

4.

10
46°

5.

13
57°

6.

21
34

7.

12
8

8.

67°
13
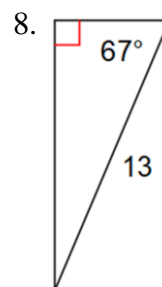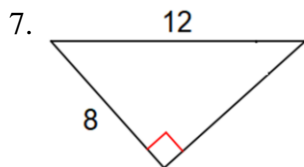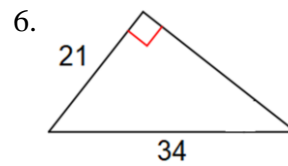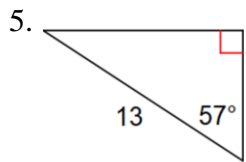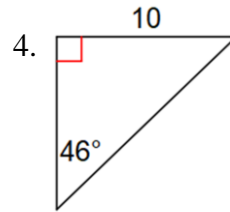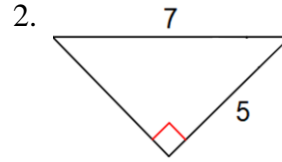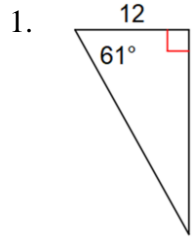
Angle of Elevation and Angle of Depression Practice

Name_____ Date _____ Block _____

1. John wants to measure the height of a tree. He walks exactly 100 feet from the base of the tree and looks up. The angle of elevation from the ground to the top of the tree is 33º . How tall is the tree?

2. The captain of a boat knows that a lighthouse on the coast is 100 ft tall and the boat is 550 ft from the coast. What is the angle of elevation that proves that the boat is 550 ft from the coast?

3. A water slide extends diagonally 59.74 meters and has a height of 13.47 meters. What is the angle of depression from the top to the bottom of a water slide?

4. A person standing 30 ft from a flag pole can see the top of the pole at a 35° angle of Elevation. The person's eye level is 5 ft from the ground. Find the height of the flag pole to the nearest foot.

5. A kite is flying at an angle of 63 degrees with the ground. If all 250 feet of string are out how high is the kite?

6. A tree casts a shadow of 28 m. The elevation of the sun is 49º. How tall is the tree?

7. A person at the top of a 100 foot cliff sees a boat. Her sighting of the boat is at an angle of depression of 10º. How far away is the boat from the cliff?