

## 4.2

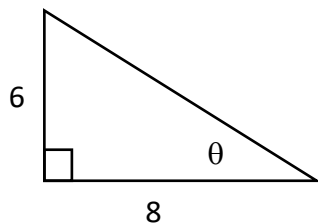
Right Triangle Trigonometry  
Homework

Name \_\_\_\_\_

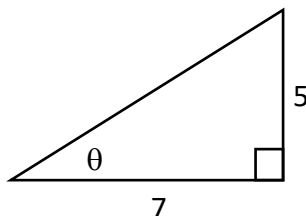
Date \_\_\_\_\_ Period \_\_\_\_\_

**Problems 1 – 4**, Find the values of  $\sin \theta$ ,  $\cos \theta$ , and  $\tan \theta$  of the angle.

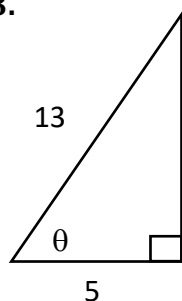
1.



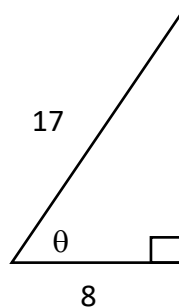
2.



3.



4.

**Problems 5– 8**, Assume that  $\theta$  is an acute angle in a right triangle satisfying the given conditions.  
Evaluate the remaining trigonometric functions.

5.  $\sin \theta = \frac{5}{11}$

6.  $\tan \theta = \frac{5}{12}$

7.  $\cos \theta = \frac{5}{8}$

8.  $\sec \theta = \frac{17}{15}$

**Problems 9 – 14,** Evaluate, if possible, using a calculator. Be sure the calculator is in the correct mode. Give answers correct to three decimal places.

9.  $\sin 78^\circ$

10.  $\tan 15^\circ 33'$

11.  $\cos 112^\circ 23'$

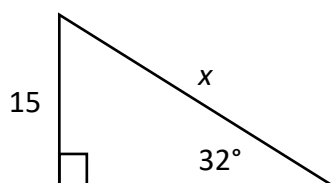
12.  $\tan \left( \frac{\pi}{8} \right)$

13.  $\sec(2.85)$

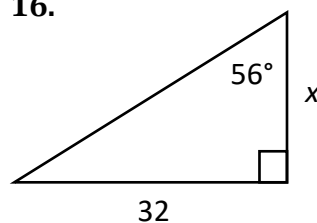
14.  $\cot(1.85)$

**Problems 15 – 18,** Solve for the variable shown.

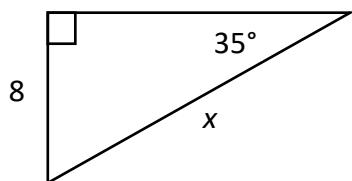
15.



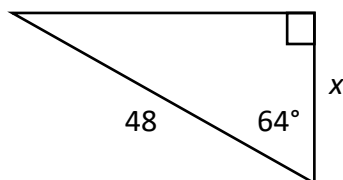
16.



17.



18.



**Problems 19 – 24,** Find the acute angle  $\theta$  that satisfies the given equation. Give  $\theta$  in both degrees and radians. You should do these without a calculator.

19.  $\sin \theta = \frac{\sqrt{3}}{2}$

20.  $\sec \theta = 2$

21.  $\cos \theta = \frac{\sqrt{2}}{2}$

22.  $\tan \theta = \sqrt{3}$

23.  $\csc \theta = \sqrt{2}$

24.  $\cot \theta = \frac{\sqrt{3}}{3}$

**Problems 25-28, Solve.**

**25.** A kite is flying 120 ft above the ground. The length of the string to the kite is 200 feet, measured from the ground. Find the angle, *to the nearest degree*, that the string makes with the ground.

**26.** A cell phone tower is 75 meters high. A support wire is attached to the tower 20 meters 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*?

**27.** The angle of elevation to the top of a flagpole from a point on the ground 30 meters from the base of the flagpole is 18 degrees. What is the height of the flagpole, to the *nearest meter*?

**28.** From the top of a lighthouse 160 feet high, the angle of depression of a boat out at sea is  $24^\circ$ . Find the distance, *to the nearest foot*, from the boat to the foot of the lighthouse.  
(The lighthouse is at sea level.)