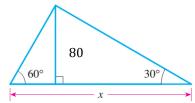
- 1. Find the degree measure of an angle in standard position determined by the rotation of the initial ray through one and two-thirds of a clockwise revolution.
- 3. Find a first-quadrant angle  $\theta$ , for which an angle four times as large as  $\theta$  will be in the given quadrant: Quadrant 3
- 2. Write a formula for the measures of all angles coterminal with the given angle. Then use the formula to find two angles, one one positive and one negative, that are coterminal with the given angle.  $\frac{5\pi}{7}$
- 4. If  $\sin \theta = \frac{5}{6}$ , and  $\cos \theta < 0$  find the other five trig functions.

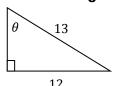
Find the exact value for x and y.

5.



Determine the measurements for angle  $\theta$  for each of the following triangles. Round to the nearest hundredth of a degree.

6.



Draw a picture for each! Round all answers to the nearest thousandth.

- 7. An airplane is at an elevation of 35,000 ft when it begins its approach to an airport. Its angle of descent is 6°. What is the approximate air distance between the plane and the airport?
- 8. An engineer builds a 75-foot vertical cellular phone tower. Find the angle of elevation to the top of the tower from a point on level ground 95 feet from its base.
- 9. Points *A* and *B* (on the same side of a tower) are 12 m apart. The angles of elevation of the top of a tower are 35° and 45° respectively. Find the tower's height.

10. A student looks out of a second-story school window and sees the top of the school flagpole at an angle of elevation of 27°. The student is 21 ft above the ground and 75 ft from the flagpole. Find the height of the flagpole.

## Convert from Radians to Degrees, or Degrees to Radians

13. 
$$\frac{7\pi}{6}$$

- 13. Find the sign of the expression if the terminal point determined by  $\theta$  is in the given quadrant:  $\cos \theta \tan \theta$ ; QIII
- 14. From the information given, find the quadrant in which  $\theta$  lies.  $\sec \theta > 0$  and  $\cot < 0$

## Find the reference angle.

16. 
$$\frac{29\pi}{6}$$

Find the exact value of the function without a calculator.

18. 
$$\cot \pi$$

19. 
$$\tan \frac{5\pi}{6}$$

Are the following points on the unit circle? Show your work.

20. 
$$\left(-\frac{\sqrt{10}}{10}, \frac{3\sqrt{10}}{10}\right)$$

1. 
$$-600^{\circ}$$
 2.  $\frac{5\pi}{7} + 2\pi n$  where n is an integer;  $\frac{19\pi}{7}$  and  $-\frac{9\pi}{7}$  3.  $45^{\circ} < \theta < 67.5^{\circ}$ 

3. 
$$45^{\circ} < \theta < 67.5^{\circ}$$

4. 
$$\sin \theta = \frac{5}{6}$$
,  $\cos \theta = -\frac{\sqrt{11}}{6}$ ,  $\tan \theta = -\frac{5\sqrt{11}}{11}$ ,  $\csc \theta = \frac{6}{5}$ ,  $\sec \theta = -\frac{6\sqrt{11}}{11}$ ,  $\cot \theta = -\frac{\sqrt{11}}{5}$  5.  $x = \frac{320\sqrt{3}}{3}$ 

5. 
$$x = \frac{320\sqrt{3}}{3}$$

6. 
$$\theta = 67.38^{\circ}$$

6. 
$$\theta = 67.38^{\circ}$$
 7. 334,837.028 feet 8. 38.29°

11. 
$$\frac{2\pi}{9}$$

11. 
$$\frac{2\pi}{9}$$
 12. 210° 13. Negative 14. Quadrant 4 15. 45°

16. 
$$\frac{\pi}{6}$$

17. 
$$-\frac{1}{2}$$

19. 
$$-\frac{\sqrt{3}}{3}$$

16. 
$$\frac{\pi}{6}$$
 17.  $-\frac{1}{2}$  18. Undefined 19.  $-\frac{\sqrt{3}}{3}$  20. Yes, (see work)