4.1 Review

Converting from Degrees to Radians In Exercises 35 and 36, rewrite each angle in radian measure as a multiple of π. (Do not use a calculator.)

35. (a) $120°$ (b) $-20°$

36. (a) $-60°$ (b) $144°$

Converting from Radians to Degrees In Exercises 37 and 38, rewrite each angle in degree measure. (Do not use a calculator.)

37. (a) $\dfrac{3\pi}{2}$ (b) $\dfrac{7\pi}{6}$

38. (a) $-\dfrac{7\pi}{12}$ (b) $\dfrac{5\pi}{4}$

Finding Arc Length In Exercises 51 and 52, find the length of the arc on a circle of radius r intercepted by a central angle θ.

51. $r = 15$ inches, $\theta = 120°$

52. $r = 3$ meters, $\theta = 150°$

Finding the Central Angle In Exercises 53 and 54, find the radian measure of the central angle of a circle of radius r that intercepts an arc of length s.

53. $r = 80$ kilometers, $s = 150$ kilometers

54. $r = 14$ feet, $s = 8$ feet

63. Angular and Linear Speeds The circular blade on a saw rotates at 5000 revolutions per minute.

(a) Find the angular speed of the blade in radians per minute.

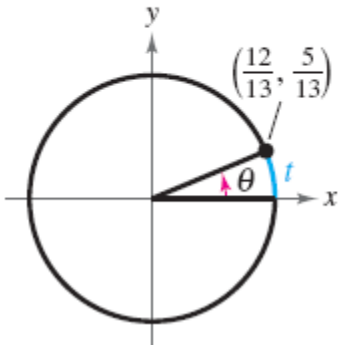(b) The blade has a diameter of $7\frac{1}{4}$ inches. Find the linear speed of a blade tip.
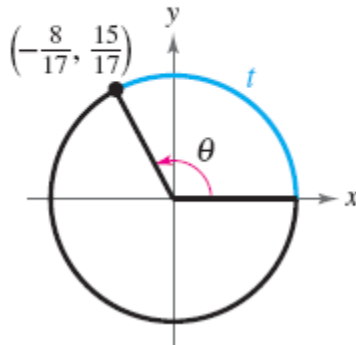
4.2 Review

Determining Values of Trigonometric Functions
In Exercises 5-6, determine the exact values of the six trigonometric functions of the real number t.

5.

6. $\left(-\frac{8}{17}, \frac{15}{17}\right)$

Evaluating Trigonometric Functions
In Exercises 23–24, evaluate (if possible) the six trigonometric functions at the real number.

23. $t = 2\pi/3$

24. $t = 5\pi/6$

Using Period to Evaluate Sine and Cosine
In Exercises 31–32, evaluate the trigonometric function using its period as an aid.

31. $\sin 4\pi$

32. $\sin \dfrac{9\pi}{4}$

4.3 Review

Evaluating Trigonometric Functions In Exercise 5 , find the exact values of the six trigonometric functions of the angle θ shown in the figure. (Use the Pythagorean Theorem to find the third side of the triangle.)

5.
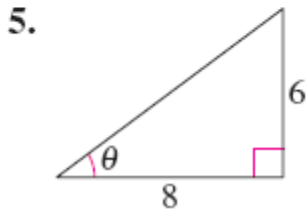
Using a Calculator In Exercise 31 , use a calculator to evaluate each function. Round your answers to four decimal places. (Be sure the calculator is in the correct mode.)
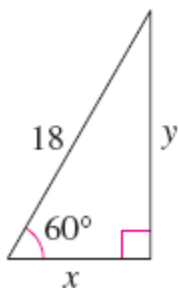
31. (a) $\cot 79.56°$ (b) $\sec 79.56°$

Evaluating Trigonometric Functions In Exercises 57–58, find each value of θ in degrees $(0° < \theta < 90°)$ and radians $(0 < \theta < \pi\ 2)$ without using a calculator.

57. (a) $\sin \theta = \frac{1}{2}$ (b) $\csc \theta = 2$

58. (a) $\cos \theta = \frac{\sqrt{2}}{2}$ (b) $\tan \theta = 1$

Finding Side Lengths of a Triangle In Exercise 63. , find the exact values of the indicated variables.
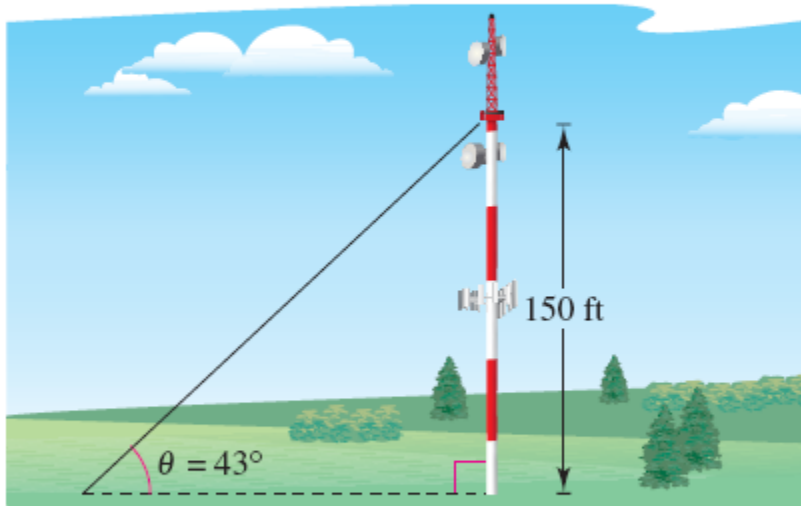
63. Find x and y.

71. **Length** A guy wire runs from the ground to a cell tower. The wire is attached to the cell tower 150 feet above the ground. The angle formed between the wire and the ground is 43° (see figure).

(a) How long is the guy wire?

(b) How far from the base of the tower is the guy wire anchored to the ground?

4.4 Review

Using a Reference Angle In Exercises 53–56, evaluate the sine, cosine, and tangent of the angle without using a calculator.

53. $225°$

54. $300°$

55. $\dfrac{5\pi}{4}$

56. $-\dfrac{\pi}{2}$

Using Trigonometric Identities In Exercises 69–71, use a trigonometric identity to find the indicated value in the specified quadrant.

Function Value	Quadrant	Value
69. $\sin\theta = -\frac{3}{5}$	IV	$\cos\theta$
70. $\cot\theta = -3$	II	$\sin\theta$
71. $\tan\theta = \frac{3}{2}$	III	$\sec\theta$