Name _____ Date _____

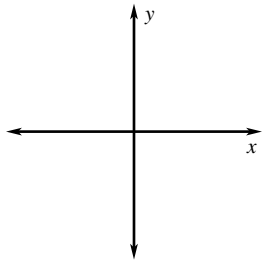
LESSON 9.2

Practice B

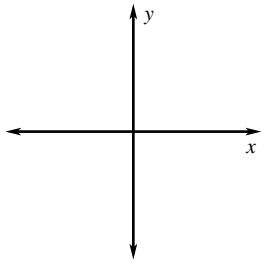
For use with the lesson "Define General Angles and Use Radian Measure"

Draw an angle with the given measure in standard position.

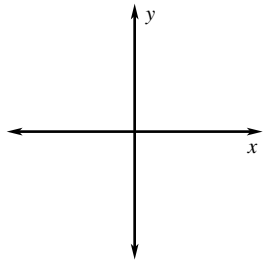
1. $130°$



2. $\frac{5\pi}{4}$



3. $-\frac{2\pi}{3}$



Find one positive angle and one negative angle that are coterminal with the given angle.

4. $-35°$

5. $280°$

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

7. $\frac{7\pi}{5}$

Convert the degree measure to radians or the radian measure to degrees.

8. $270°$

9. $-135°$

10. $\frac{11\pi}{6}$

11. $-\frac{\pi}{18}$

Find the arc length and area of a sector with the given radius *r* and central angle θ.

12. $r = 5$ m, $\theta = \frac{\pi}{2}$

13. $r = 7$ in., $\theta = \frac{3\pi}{4}$

14. $r = 11$ ft, $\theta = 200°$

Evaluate the trigonometric function using a calculator if necessary. If possible, give an exact answer.

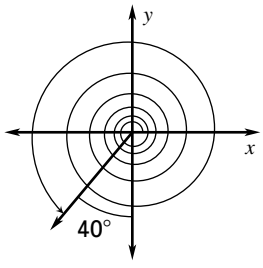
15. $\cos\frac{\pi}{4}$

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

17. $\cot\frac{\pi}{9}$

18. $\csc\frac{4\pi}{5}$

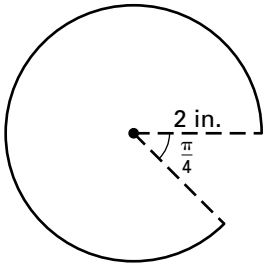
19. **Swing** At an amusement park, you ride a swing that takes you several revolutions counterclockwise as shown in the diagram. Find the measure of the angle generated as you are on the ride. Give the answer in both degrees and radians.



20. **Cheese** A circular piece of cheese has a portion cut out as shown.

a. What is the approximate arc length of the portion that is missing?

b. What is the approximate area of the portion that is missing?



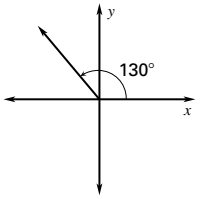
Lesson 9.2 Define General Angles and Use Radian Measure, continued

15. $\frac{\sqrt{3}}{2}$ **16.** $\frac{\sqrt{3}}{2}$ **17.** $\sqrt{3}$ **18.** about 2.7475

19. 240°, $\frac{4\pi}{3}$ **20.** about 2.4 feet

Practice Level B

1.



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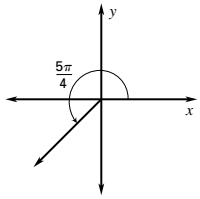

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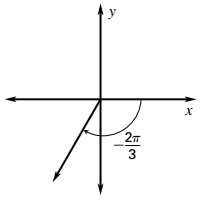


4. 325°, −395°

5. 640°, −80° **6.** $\frac{11\pi}{6}$, $-\frac{13\pi}{6}$ **7.** $\frac{17\pi}{5}$, $-\frac{3\pi}{5}$

8. $\frac{3\pi}{2}$ **9.** $-\frac{3\pi}{4}$ **10.** 330° **11.** −10°

12. $\frac{5\pi}{2}$ m, $\frac{25\pi}{4}$ m^2 **13.** $\frac{21\pi}{4}$ in., $\frac{147\pi}{8}$ in.^{2}

14. $\frac{110\pi}{9}$ ft, $\frac{605\pi}{9}$ ft^2 **15.** $\frac{\sqrt{2}}{2}$ **16.** $\frac{1}{2}$

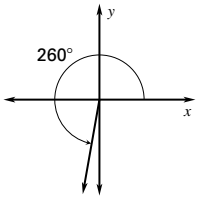
17. about 2.7475 **18.** about 1.7013

19. 2030°, $\frac{203\pi}{18}$ **20. a.** about 1.6 in.

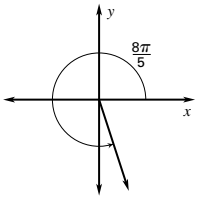
b. about 1.6 in.^{2}

Practice Level C

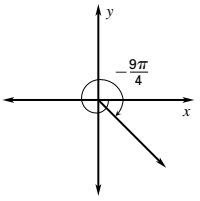
1.



2.



3.



4–7. Sample answers are given. **4.** 515°, −205°

5. 35°, −685° **6.** $\frac{9\pi}{5}$, $-\frac{\pi}{5}$ **7.** $\frac{\pi}{7}$, $-\frac{13\pi}{7}$ **8.** $\frac{4\pi}{9}$

9. $-\frac{32\pi}{45}$ **10.** 54° **11.** −960°

12. about 28.3 in., about 169.6 in.^{2}

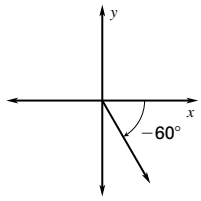
13. about 28.3 m, 229 m^2 **14.** about 81 ft, about 587.1 ft^2 **15.** 0 **16.** about 0.766 **17.** −1

18. about 1.556 **19.** about 6283 mi **20.** $\frac{\pi}{6}$

21. $\frac{3\pi}{2}$ **22.** 4th

Study Guide

1.



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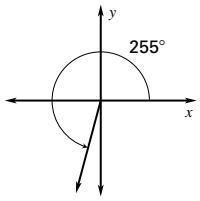

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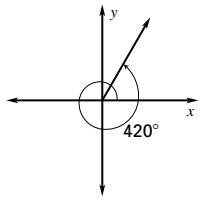
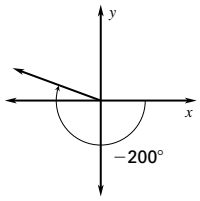


4.



5. $\frac{7\pi}{4}$ **6.** $-\frac{5\pi}{6}$ **7.** 150° **8.** −135°

9. about 7.85 in., about 35.34 in.^{2}

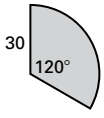
10. about 20.94 cm, about 52.36 cm^2

11. about 18.85 ft, about 56.55 ft^2

Problem Solving Workshop: Using Alternative Methods

1. about 4.2 in., about 8.4 in.^{2} **2.** about 13.1 ft, about 65.4 ft^2 **3.** about 7 ft, about 34.9 ft^2

4.



about 942.5 m^2

5. about 27.9 in., about 223.4 in.^{2}

Challenge Practice

1. $\frac{7\pi}{24}$ **2.** $-\frac{125\pi}{216}$ **3.** $-\frac{979\pi}{8100}$ **4.** $\frac{1171\pi}{648}$

5. about 1141 mi **6.** about 505 mi **7. a.** 798°

b. about 192.2 ft **8.** The area of a circle is πr^2. The arc length of an entire circle is $2\pi r$. You can now set up the following proportion:

$$\frac{\text{Area of a sector}}{\text{Area of circle}} = \frac{\text{Arc length of sector}}{\text{Arc length of circle}}.$$

Substituting the appropriate values into the proportion, you obtain the following:

$$\frac{A}{\pi r^2} = \frac{r\theta}{2\pi r}.$$

Now, solving for A, you obtain the formula for the area of a sector of a circle: $A = \frac{1}{2}\theta r^2$.