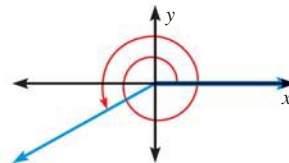


DRAWING ANGLES Draw an angle with the given measure in standard position.

6. 110° 7. -10° 8. 450° 9. -900°
 10. 6π 11. $\frac{5\pi}{18}$ 12. $-\frac{5\pi}{3}$ 13. $\frac{26\pi}{9}$

14. **TAKS REASONING** Which angle measure is shown in the diagram?

- (A) -150° (B) 210°
 (C) 570° (D) 930°

**EXAMPLES 2 and 3**

on pp. 860–861
for Exs. 15–22

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

15. 70° 16. 255° 17. -125° 18. 820°
 19. $\frac{9\pi}{2}$ 20. $-\frac{7\pi}{6}$ 21. $\frac{28\pi}{9}$ 22. $\frac{20\pi}{3}$

EXAMPLE 3

on p. 861
for Exs. 23–31

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

23. 40° 24. 315° 25. -260° 26. 500°
 27. $\frac{\pi}{9}$ 28. $-\frac{\pi}{4}$ 29. 5π 30. $\frac{14\pi}{15}$

31. **TAKS REASONING** Which angle measure is equivalent to $\frac{13\pi}{6}$ radians?

- (A) 30° (B) 390° (C) 750° (D) 1110°

EXAMPLE 4

on p. 862
for Exs. 32–38

FINDING ARC LENGTH AND AREA Find the arc length and area of a sector with the given radius r and central angle θ .

32. $r = 4$ in., $\theta = \frac{\pi}{6}$ 33. $r = 3$ m, $\theta = \frac{5\pi}{12}$ 34. $r = 15$ cm, $\theta = 45^\circ$
 35. $r = 12$ ft, $\theta = 150^\circ$ 36. $r = 18$ m, $\theta = 25^\circ$ 37. $r = 25$ in., $\theta = 270^\circ$

38. **ERROR ANALYSIS** Describe and correct the error in finding the area of a sector with a radius of 6 centimeters and a central angle of 40° .

$$A = \frac{1}{2}(6)^2(40) = 720 \text{ cm}^2$$

**HINT**

For Exs. 39–46,
set your
calculator in
radian mode.

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

39. $\cos \frac{\pi}{3}$ 40. $\sin \frac{\pi}{4}$ 41. $\tan \frac{\pi}{6}$ 42. $\sec \frac{\pi}{9}$
 43. $\cot \frac{\pi}{8}$ 44. $\cos \frac{\pi}{6}$ 45. $\sin \frac{3\pi}{7}$ 46. $\csc \frac{4\pi}{15}$

47. **CHALLENGE** A rotating object that passes through an angle θ during time t has an angular velocity v given by the formula $v = \frac{\theta}{t}$. Find the angular velocity of the hour hand, the minute hand, and the second hand on a 12 hour clock. Give all answers in degrees per hour.