Name _____ Class _____ Date _____

13-3 Practice

Form G

Radian Measure

Write each measure in radians. Express your answer in terms of π and as a decimal rounded to the nearest hundredth.

1. 45°

2. 90°

3. 30°

4. -150°

5. 180°

6. −240°

7. 270°

8. 300°

Write each measure in degrees. Round your answer to the nearest degree, if necessary.

9. $\frac{\pi}{6}$ radians

10. $-\frac{7\pi}{6}$ radians

11. $\frac{7\pi}{4}$ radians

12. −4 radians

13. 1.8 radians

14. 0.45 radians

The measure θ of an angle in standard position is given. Find the exact values of $\cos\theta$ and $\sin\theta$ for each angle measure.

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

16. $\frac{\pi}{3}$

17. $-\frac{3\pi}{4}$

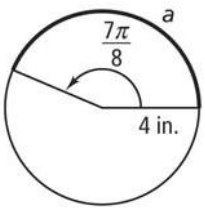
18. $\frac{7\pi}{4}$

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

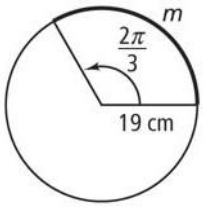
20. $-\frac{2\pi}{3}$

Use each circle to find the length of the indicated arc. Round your answer to the nearest tenth.

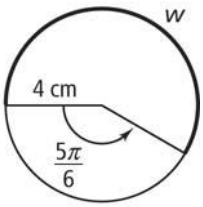
21.



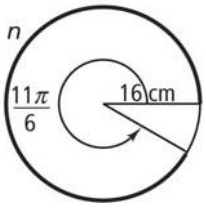
22.



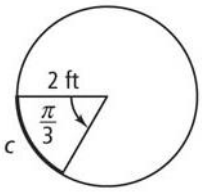
23.



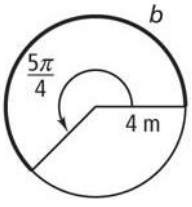
24.



25.



26.



Copyright © by Pearson Education, Inc., or its affiliates. All Rights Reserved.

Name _____ Class _____ Date _____

13-3 Practice (continued) *Form G*

Radian Measure

27. The minute hand of a clock is 8 in. long.

a. What distance does the tip of the minute hand travel in 10 min?

b. What distance does the tip of the minute hand travel in 40.5 min?

c. What distance does the tip of the minute hand travel in 3.25 h?

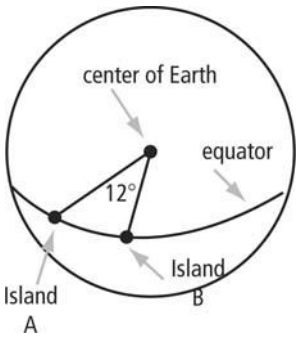
d. Reasoning After approximately how many hours has the tip of the minute hand traveled 100 ft?

28. A 0.8 m pendulum swings through an angle of 86°. What distance does the tip of the pendulum travel?

29. A scientist studies two islands shown at the right. The distance from the center of the Earth to the equator is about 3960 mi.

a. What is the measure in radians of the central angle that intercepts the arc along the equator between the islands?

b. About how far apart are the two islands?



Determine the quadrant or axis where the terminal side of each angle lies.

30. $\frac{\pi}{5}$ **31.** $-\frac{5\pi}{2}$ **32.** $\frac{5\pi}{3}$ **33.** $\frac{8\pi}{7}$

Draw an angle in standard position with each given measure. Then find the values of the cosine and sine of the angle to the nearest hundredth.

34. $\frac{5\pi}{4}$ **35.** -3π **36.** $\frac{2\pi}{9}$

37. Error Analysis A student wanted to convert 75° to radians. His calculation is shown below. What error did he make? What is the correct conversion?

$$\frac{(75 \times 180)}{\pi} \approx 4297.18 \text{ radians}$$

Copyright © by Pearson Education, Inc., or its affiliates. All Rights Reserved.