

# Practice

Form G

## Radian Measure

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

- |                |                 |                |                 |
|----------------|-----------------|----------------|-----------------|
| 1. $45^\circ$  | 2. $90^\circ$   | 3. $30^\circ$  | 4. $-150^\circ$ |
| 5. $180^\circ$ | 6. $-240^\circ$ | 7. $270^\circ$ | 8. $300^\circ$  |

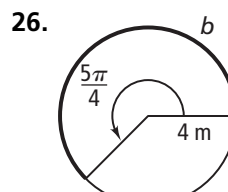
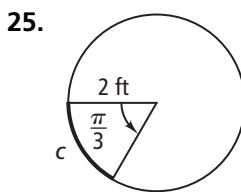
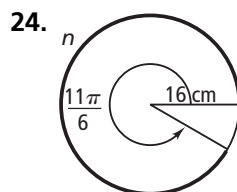
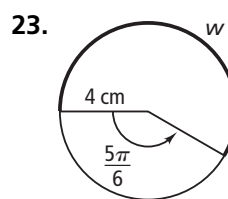
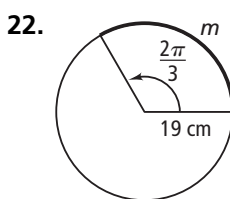
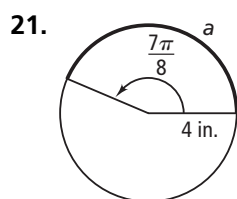
Write each measure in degrees. Round your answer to the nearest degree, if necessary.

- |                            |                               |                              |
|----------------------------|-------------------------------|------------------------------|
| 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  $\theta$  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.



**Practice** (continued)

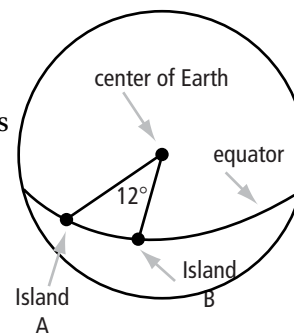
Form G

Radian Measure

27. The minute hand of a clock is 8 in. long.
- What distance does the tip of the minute hand travel in 10 min?
  - What distance does the tip of the minute hand travel in 40.5 min?
  - What distance does the tip of the minute hand travel in 3.25 h?
  - 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  $86^\circ$ . 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.
- What is the measure in radians of the central angle that intercepts the arc along the equator between the islands?
  - 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.  $-3\pi$                       36.  $\frac{2\pi}{9}$

37. **Error Analysis** A student wanted to convert  $75^\circ$  to radians.  $\frac{(75 \times 180)}{\pi} \approx 4297.18$  radians  
His calculation is shown at the right. What error did he make? What is the correct conversion?