

# Practice 13-3

## Radian Measure

Write each measure in radians. Express your answer in terms of  $\pi$ .

- |                |                 |                 |                 |                 |
|----------------|-----------------|-----------------|-----------------|-----------------|
| 1. $45^\circ$  | 2. $90^\circ$   | 3. $30^\circ$   | 4. $150^\circ$  | 5. $180^\circ$  |
| 6. $240^\circ$ | 7. $270^\circ$  | 8. $300^\circ$  | 9. $360^\circ$  | 10. $40^\circ$  |
| 11. $80^\circ$ | 12. $110^\circ$ | 13. $160^\circ$ | 14. $200^\circ$ | 15. $220^\circ$ |

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

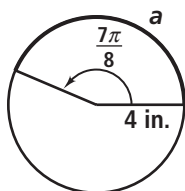
- |                      |                      |                       |                      |                      |
|----------------------|----------------------|-----------------------|----------------------|----------------------|
| 16. $\pi$            | 17. $2\pi$           | 18. $\frac{5\pi}{6}$  | 19. $\frac{3\pi}{4}$ | 20. $\frac{3\pi}{2}$ |
| 21. $\frac{\pi}{6}$  | 22. $\frac{7\pi}{6}$ | 23. $\frac{11\pi}{6}$ | 24. $\frac{\pi}{3}$  | 25. $\frac{4\pi}{3}$ |
| 26. $\frac{5\pi}{4}$ | 27. $\frac{7\pi}{4}$ | 28. $\frac{2\pi}{3}$  | 29. $\frac{\pi}{9}$  | 30. $\frac{2\pi}{9}$ |

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.

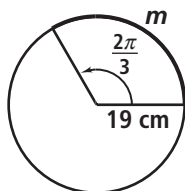
- |                              |                              |                               |                              |
|------------------------------|------------------------------|-------------------------------|------------------------------|
| 31. $\frac{\pi}{6}$ radians  | 32. $\frac{\pi}{3}$ radians  | 33. $-\frac{3\pi}{4}$ radians | 34. $\frac{7\pi}{4}$ radians |
| 35. $\frac{5\pi}{6}$ radians | 36. $\frac{4\pi}{3}$ radians | 37. $\frac{11\pi}{6}$ radians | 38. $\frac{2\pi}{3}$ radians |

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

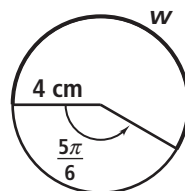
39.



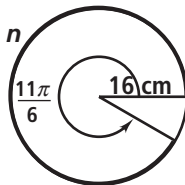
40.



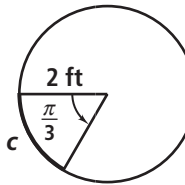
41.



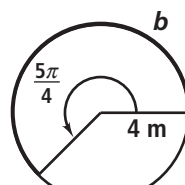
42.



43.



44.



45. A pendulum swings through an angle of 1.8 radians. The distance the tip of the pendulum travels is 32 in. How long is the pendulum?
46. A 0.8 m pendulum swings through an angle of 1.5 radians. What distance does the tip of the pendulum travel?