9.3 EXERCISES

SKILL PRACTICE

1. **VOCABULARY** The radius of a circle is the distance from any point on the circle to a fixed point called the circle's __?__.

2. **WRITING** How are the slope of a line tangent to a circle and the slope of the radius at the point of tangency related?

EXAMPLE 1
on p. 626
for Exs. 3–21

MATCHING GRAPHS Match the equation with its graph.
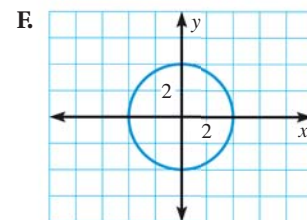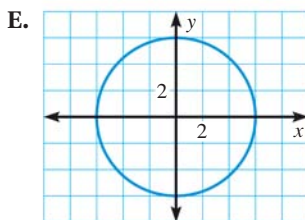
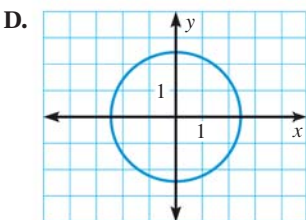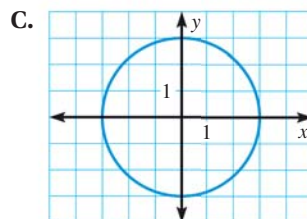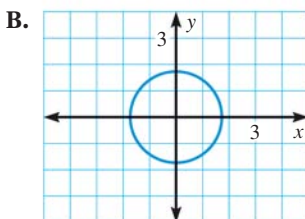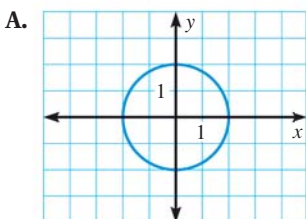3. $x^2 + y^2 = 9$ 4. $x^2 + y^2 = 36$ 5. $x^2 + y^2 = 4$

6. $x^2 + y^2 = 6$ 7. $x^2 + y^2 = 16$ 8. $x^2 + y^2 = 3$

GRAPHING Graph the equation. Identify the radius of the circle.

9. $x^2 + y^2 = 1$ 10. $x^2 + y^2 = 81$ 11. $x^2 + y^2 = 25$

12. $x^2 + y^2 = 12$ 13. $y^2 = 27 - x^2$ 14. $x^2 = -y^2 + 40$

15. $x^2 = 15 - y^2$ 16. $y^2 = -x^2 + 9$ (17.) $15x^2 + 15y^2 = 60$

18. $7x^2 + 7y^2 = 112$ 19. $4x^2 + 4y^2 = 128$ 20. $8x^2 + 8y^2 = 192$

21. **TAKS REASONING** What is the radius of the circle $3x^2 + 3y^2 = 54$?

     Ⓐ $3\sqrt{2}$ Ⓑ $3\sqrt{6}$ Ⓒ 18   Ⓓ 54

EXAMPLE 2
on p. 627
for Exs. 22–43

WRITING EQUATIONS Write the standard form of the equation of the circle with the given radius and whose center is the origin.

22. 12   23. 8   24. 2   25. 16

26. $\sqrt{2}$ 27. $\sqrt{15}$ 28. $5\sqrt{2}$ 29. $4\sqrt{6}$

30. **ERROR ANALYSIS** *Describe* and correct the error in writing an equation of the circle with the given center and radius.

Center: (0, 0); Radius: 12
Equation: $x^2 + y^2 = 12$ ✗