11. Find the center and the radius of each circle.

a. $(x - 2)^2 + y^2 = 1$ **b.** $(x + 2)^2 + (y - 8)^2 = 16$

c. $x^2 + (y + 5)^2 = 112$ **d.** $(x + 3)^2 + (y + 7)^2 = 14$

12. Find an equation of the circle that has the given center and radius.

a. Center (2, 5); radius 3 **b.** Center $(-2, 0)$; radius 5

c. Center $(-2, 3)$; radius 10 **d.** Center (j, k); radius n

Find the center and the radius of each circle.

17. $(x + 3)^2 + y^2 = 49$ **18.** $(x + 7)^2 + (y - 8)^2 = \frac{36}{25}$

19. $(x - j)^2 + (y + 14)^2 = 17$ **20.** $(x + a)^2 + (y - b)^2 = c^2$

Write an equation of the circle that has the given center and radius.

21. $C(3, 0)$; $r = 8$ **22.** $C(0, 0)$; $r = 6$

23. $C(-4, -7)$; $r = 5$ **24.** $C(-2, 5)$; $r = \frac{1}{3}$

25. Sketch the graph of $(x - 3)^2 + (y + 4)^2 = 36$.

26. Sketch the graph of $(x - 2)^2 + (y - 5)^2 \leq 9$.

In Exercises 35–38 find an equation of the circle described and sketch the graph.

35. The circle has center (0, 6) and passes through point (6, 14).

36. The circle has center $(-2, -4)$ and passes through point (3, 8).

37. The circle has diameter $\overline{RS}$ where R is $(-3, 2)$ and S is (3, 2).

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WE #17-26, 35-37