

Practice

Form G

Circles in the Coordinate Plane

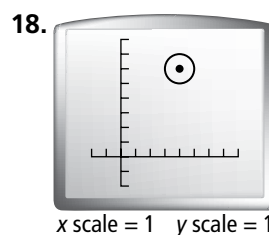
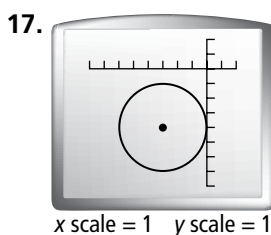
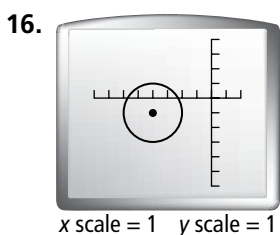
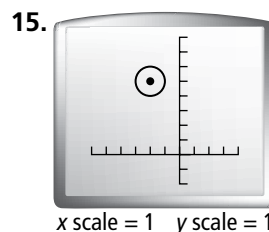
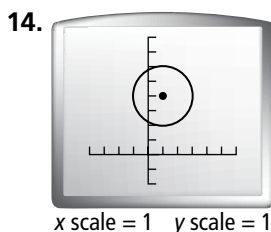
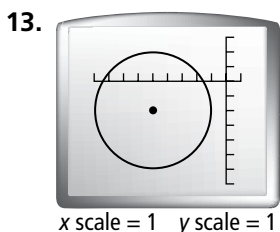
Write an equation of a circle with the given center and radius. Check your answers.

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|-------------------------------|------------------------------|
| 1. center (0, 0), radius 3 | 2. center (0, 1), radius 2 |
| 3. center (-1, 0), radius 6 | 4. center (2, 0), radius 1 |
| 5. center (1, -5), radius 2.5 | 6. center (2, 3), diameter 1 |

Write an equation for each translation.

- | | |
|---|--|
| 7. $x^2 + y^2 = 9$; right 4 and down 2 | 8. $x^2 + y^2 = 12$; left 2 and up 5 |
| 9. $x^2 + y^2 = 49$; right 1 and up 7 | 10. $x^2 + y^2 = 1$; right 5 and up 5 |
| 11. $x^2 + y^2 = 25$; up 10 | 12. $x^2 + y^2 = 36$; left 8 and down 6 |

Write an equation for each circle. Each interval represents one unit.



For each equation, find the center and radius of the circle.

- | | |
|---------------------------------|---------------------------|
| 19. $(x + 1)^2 + (y - 8)^2 = 1$ | 20. $x^2 + (y + 3)^2 = 9$ |
| 21. $(x + 3)^2 + (y + 1)^2 = 2$ | 22. $(x - 6)^2 + y^2 = 5$ |
| 23. $(x - 6)^2 + (y - 9)^2 = 4$ | 24. $x^2 + y^2 = 144$ |

Practice (continued)

Form G

Circles in the Coordinate Plane

Use the center and the radius to graph each circle.

25. $(x + 9)^2 + (y - 2)^2 = 81$

26. $x^2 + (y + 3)^2 = 121$

27. $(x - 8)^2 + (y + 9)^2 = 64$

28. $(x + 8)^2 + y^2 = 49$

29. **Writing** Describe in words how to change the equation of a circle with the center at the origin and radius 5 to a circle with the center 3 units right and 2 units up.

30. **Open-Ended** Write an equation for a circle with center at the origin and an equation for another circle that is a translation of the first.

31. **Error Analysis** A classmate writes the equation of a circle with the center at $(8.5, 0)$ and diameter 25 as $x + (y - 8.5)^2 = 156.25$. Is she correct? Why or why not?

32. **Reasoning** How can you determine if the graph of the circle $(x + 8)^2 + (y + 9)^2 = 49$ is correctly drawn?