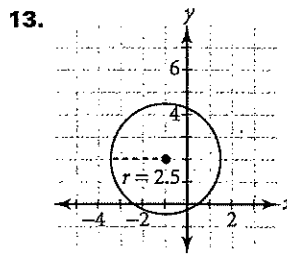
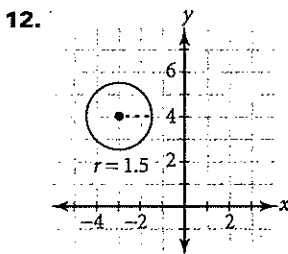
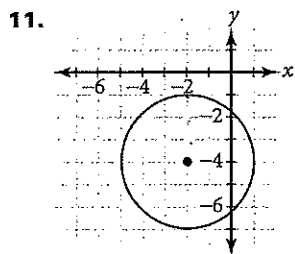
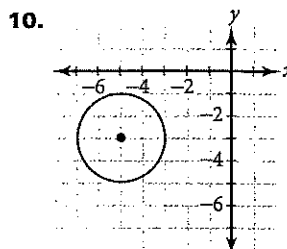
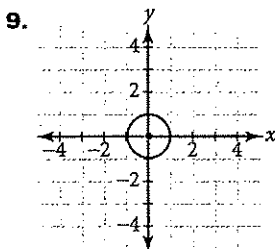
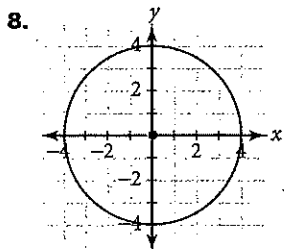


Unit 2: Algebra Topics

Practice and Apply

Write the standard equation for each circle graphed below.



Write the standard equation of a circle with each given radius and center.

- | | |
|---|---|
| 14. $r = 4$; $C(0, 0)$ | 15. $r = 5$; $C(0, 0)$ |
| 16. $r = 11$; $C(0, 0)$ | 17. $r = 7$; $C(0, 0)$ |
| 18. $r = 1$; $C(2, 3)$ | 19. $r = 12$; $C(3, 5)$ |
| 20. $r = 10$; $C(-2, -7)$ | 21. $r = 5$; $C(-5, -1)$ |
| 22. $r = 4$; $C(-2, 8)$ | 23. $r = 15$; $C(-6, 9)$ |
| 24. $r = 2$; $C(0, 12)$ | 25. $r = 3$; $C(0, 4)$ |
| 26. $r = \frac{1}{3}$; $C(-2, -2)$ | 27. $r = 2$; $C(3, 3)$ |
| 28. $r = \frac{1}{2}$; $C(2, 0)$ | 29. $r = \frac{1}{4}$; $C(1, 0)$ |
| 30. $r = 1$; $C(a, a)$, where $a > 0$ | 31. $r = 2$; $C(a, -2a)$, where $a > 0$ |

Write the standard equation for each circle. Then state the coordinates of its center and give its radius.

- | | |
|-------------------------------------|------------------------------------|
| 44. $x^2 + y^2 + 4y = 12$ | 45. $x^2 - 2x + y^2 = 8$ |
| 46. $x^2 + 2x + y^2 + 2y = 2$ | 47. $x^2 + 2x + y^2 + 6y = 6$ |
| 48. $x^2 + y^2 - 10x - 2y = 23$ | 49. $x^2 + y^2 - 12x + 6y = 19$ |
| 50. $x^2 + y^2 + 6x - 17 = 0$ | 51. $x^2 + y^2 - 20y + 19 = 0$ |
| 52. $x^2 + y^2 + x + y = 0$ | 53. $x^2 + y^2 - x + y = 0$ |
| 54. $x^2 + y^2 - x + 3y = 7.5$ | 55. $x^2 + y^2 - x + 7y = 12.5$ |
| 56. $x^2 + y^2 - 12x - 2y - 8 = 0$ | 57. $x^2 + y^2 - 6x - 10y - 2 = 0$ |
| 58. $x^2 + y^2 + 6x - 14y - 42 = 0$ | 59. $x^2 + y^2 - 10x + 6y = 0$ |

State whether the given point is inside, outside, or on the circle whose equation is given. Justify your response.

68. $P(2, 2); x^2 + y^2 = 9$

69. $P(1, 6); x^2 + y^2 = 49$

70. $P(5, 1); x^2 - 6x + y^2 + 8y = 24$

71. $P(2, -3); x^2 - 4x + y^2 + 6y = 12$

72. $P(0, 0); x^2 + 10x + y^2 + 2y = 10$

73. $P(12, 3); x^2 - 12x + y^2 + 2y = 12$

74. $P(0.5, 0.5); x^2 + y^2 = 1$

75. $P(1.5, 3.5); x^2 + y^2 = 6$

78. TRANSFORMATIONS The circle defined by $(x - 1)^2 + (y + 4)^2 = 16$ is translated 3 units to the left and 2 units down. Write the standard equation for the resulting circle.