

3.2 EXERCISES

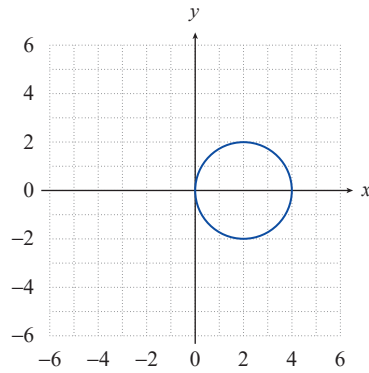
PRACTICE

Find the standard form of the equation for the circle. See Examples 1 and 2.

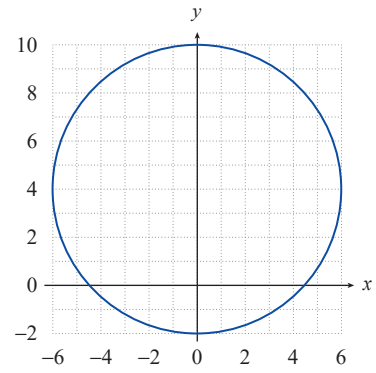
1. Center $(-4, -3)$; radius 5
2. Center at origin; radius 3
3. Center $(7, -9)$; radius 3
4. Center $(-2, 2)$; radius 2
5. Center $(0, 0)$; radius $\sqrt{6}$
6. Center $(6, 3)$; radius 8
7. Center $(\sqrt{5}, \sqrt{3})$; radius 4
8. Center $(\frac{5}{3}, \frac{8}{5})$; radius $\sqrt{8}$
9. Center $(7, 2)$; passes through $(7, 0)$
10. Center $(3, 3)$; passes through $(1, 3)$
11. Center $(-3, 8)$; passes through $(-4, 9)$
12. Center $(0, 0)$; passes through $(2, 10)$
13. Center $(4, 8)$; passes through $(1, 9)$
14. Center $(12, -4)$; passes through $(-9, 5)$
15. Center at the origin; passes through $(6, -7)$
16. Center $(13, -2)$; passes through $(8, -3)$
17. Endpoints of a diameter are $(-8, 6)$ and $(1, 11)$
18. Endpoints of a diameter are $(5, 3)$ and $(8, -3)$
19. Endpoints of a diameter are $(-7, -4)$ and $(-5, 7)$
20. Endpoints of a diameter are $(2, 3)$ and $(7, 4)$
21. Endpoints of a diameter are $(0, 0)$ and $(-13, -14)$
22. Endpoints of a diameter are $(4, 10)$ and $(0, 3)$
23. Endpoints of a diameter are $(0, 6)$ and $(8, 0)$
24. Endpoints of a diameter are $(6, 9)$ and $(4, 9)$

Find the standard form of the equation for the circle. See Example 3.

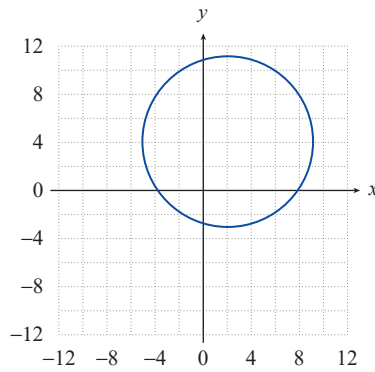
25.



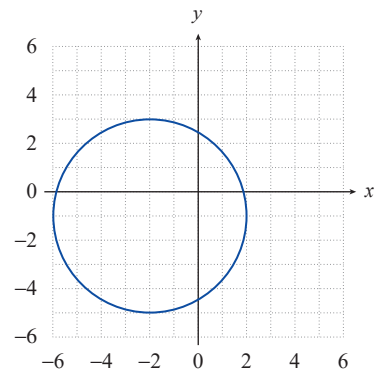
26.



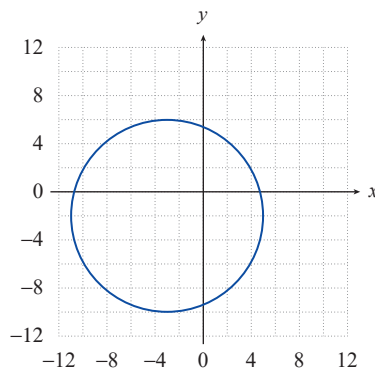
27.



28.



29.



Sketch a graph of the equation and find the center and radius of each circle. See Examples 4 and 5.

30. $x^2 + y^2 = 25$

31. $x^2 + y^2 = 36$

32. $x^2 + (y - 3)^2 = 16$

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

34. $(x + 2)^2 + y^2 = 49$

35. $(x - 8)^2 + y^2 = 8$

36. $(x - 9)^2 + (y - 4)^2 = 49$

37. $(x + 5)^2 + (y + 4)^2 = 4$

38. $(x+2)^2 + (y-7)^2 = 64$

40. $x^2 + y^2 - 2x + 10y + 1 = 0$

42. $x^2 + y^2 + 6x + 5 = 0$

44. $x^2 + y^2 - x - y = 2$

46. $(x-5)^2 + y^2 = 225$

48. $(x-3)^2 + (y+2)^2 = 81$

50. $(x+2)^2 + (y-1)^2 = 61$

52. $x^2 + (y+2)^2 = 49$

54. $x^2 + y^2 + 8x = 9$

39. $(x-5)^2 + (y+5)^2 = 5$

41. $x^2 + y^2 - 4x + 4y - 8 = 0$

43. $x^2 + y^2 + 10y + 9 = 0$

45. $x^2 + y^2 + 6y - 2x = -2$

47. $4x^2 + 4y^2 = 256$

49. $x^2 + y^2 - 6x + 4y - 3 = 0$

51. $(x-1)^2 + y^2 = 9$

53. $x^2 + y^2 - 4x + 8y - 16 = 0$

55. $4x^2 + 4y^2 - 24x + 24y = 28$