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 $\left(\sqrt{5}, \sqrt{3}\right)$; radius 4

8. Center $\left(\frac{5}{3}, \frac{8}{5}\right)$; 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 $(-13,-14)$

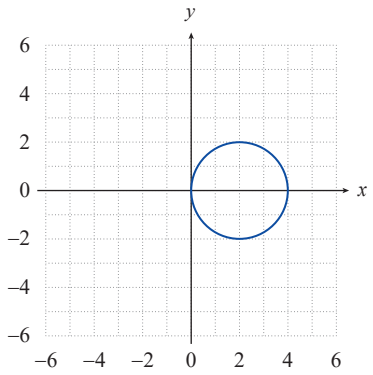
22. Endpoints of a diameter are $(4,10)$ and $(0,3)$

23. Endpoints of a diameter are $(0,6)$ and $(8,0)$

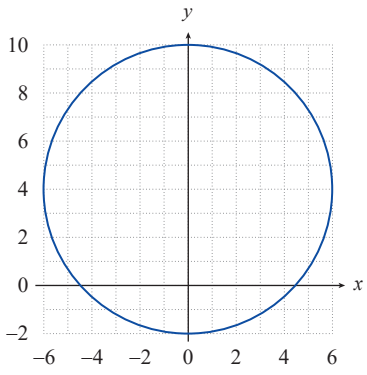
24. Endpoints of a diameter are $(6,9)$ and $(4,9)$

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

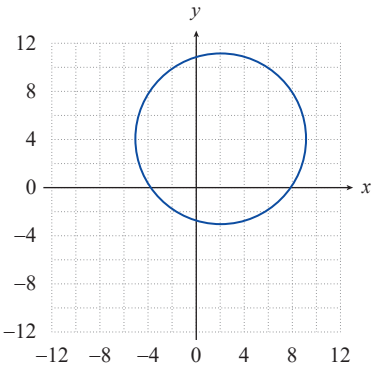
25.



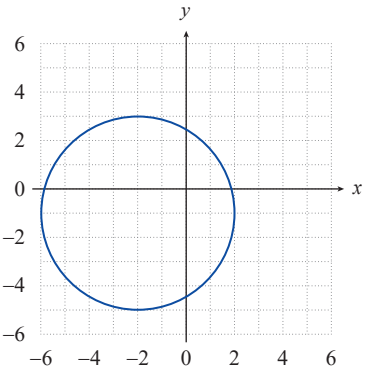
26.



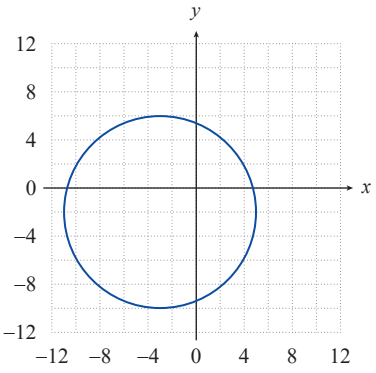
27.



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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