Distance Formula and Circles
… No Answers

Section 11.1

For Exercises 1–4, find the distance between the two points by using the distance formula.

1. $(-6, 3)$ and $(0, 1)$

2. $(4, 13)$ and $(-1, 5)$

3. Find x such that $(x, 5)$ is 5 units from $(2, 9)$.

4. Find x such that $(-3, 4)$ is 3 units from $(x, 1)$.

Points are said to be collinear if they all lie on the same line. If three points are collinear, then the distance between the outermost points will equal the sum of the distances between the middle point and each of the outermost points. For Exercises 5–6, determine if the three points are collinear.

5. $(-2, -3)$, $(1, 3)$, and $(5, 11)$

6. $(-2, 11)$, $(0, 5)$, and $(4, -7)$

For Exercises 7–10, find the center and the radius of the circle.

7. $(x - 12)^2 + (y - 3)^2 = 16$

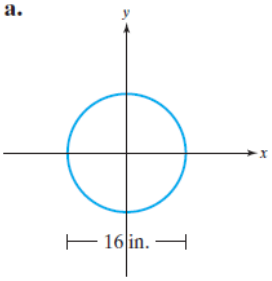
8. $(x + 7)^2 + (y - 5)^2 = 81$

9. $(x + 3)^2 + (y + 8)^2 = 20$

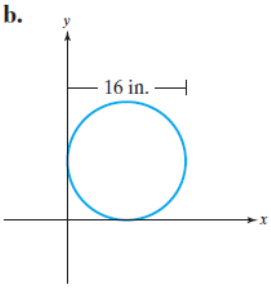
10. $(x - 1)^2 + (y + 6)^2 = 32$

11. A stained glass window is in the shape of a circle with a 16-in. diameter. Find an equation of the circle relative to the origin for each of the following graphs.

a.



b.



For Exercises 12–15, write the equation of the circle in standard form by completing the square.

12. $x^2 + y^2 + 12x - 10y + 51 = 0$

13. $x^2 + y^2 + 4x + 16y + 60 = 0$

14. $x^2 + y^2 - x - 4y + \frac{1}{4} = 0$

15. $x^2 + y^2 - 6x - \frac{2}{3}y + \frac{1}{9} = 0$

16. Write an equation of a circle with center at the origin and a diameter of 7 m.

17. Write an equation of a circle with center at $(0, 2)$ and a diameter of 6 m.