Name _____ Class _____ Date _____

Practice 10-6

Translating Conic Sections

Identify the conic section represented by each equation by writing the equation in standard form. For a parabola, give the vertex. For a circle, give its center and radius. For an ellipse or hyperbola, give its center and foci. Sketch the graph.

1. $3x^2 + 6x + 5y^2 - 20y - 13 = 0$

2. $x^2 - 9y^2 + 36y - 45 = 0$

3. $x^2 + 4y^2 + 8x - 48 = 0$

4. $x^2 + y^2 - 8x - 4y + 19 = 0$

5. $x^2 + y^2 + 6y - 27 = 0$

6. $x^2 - 10x - 4y^2 + 24y - 15 = 0$

7. $16x^2 - 96x - 9y^2 + 36y - 36 = 0$

8. $10x^2 + 10y^2 - 70 = 0$

9. $x^2 + 2x + y^2 + 14y - 31 = 0$

10. $25x^2 + 50x - 9y^2 - 18y - 209 = 0$

11. $4x^2 - 16x + 4y^2 - 16y - 4 = 0$

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

13. $x^2 - 10x + y^2 + 4y - 7 = 0$

14. $x^2 + 2x + y^2 - 10y - 38 = 0$

15. $x^2 - 2x - y + 3 = 0$

16. $x^2 + 6x - y + 7 = 0$

17. $x^2 + 8x + y^2 + 2y + 1 = 0$

18. $x^2 - y^2 - 4 = 0$

19. $y^2 + 2y - x + 3 = 0$

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

Write an equation of a conic section with the given characteristics.

21. circle with center $(-4, 5)$, radius 6

22. hyperbola with center $(-4, 5)$, one vertex $(-4, 7)$, one focus $(-4, 8)$

23. Points on the hyperbola are 96 units closer to one focus than to the other. The foci are located at $(0, 0)$ and $(100, 0)$.

24. parabola with vertex $(1, -2)$, x-intercept 3, and opens to the right

25. ellipse with center $(0, 2)$, horizontal major axis of length 6, minor axis of length 4

26. ellipse with center $(-4,-5)$, endpoints of major and minor axes $(-4, -7)$, $(-4, -3)$, $(-1, -5)$, $(-7, -5)$

27. circle with center $(-1, 2)$, diameter 12

28. parabola with vertex $(-1, 5)$, y-intercept 4, and opens downward

29. hyperbola with vertices $(0, 2)$ and $(4, 2)$, foci $(-1, 2)$ and $(5, 2)$

30. ellipse with center $(2, -5)$, one end of each axis $(2, -9)$ and $(-3, -5)$

31. Points on the hyperbola are 12 units closer to one focus than to the other. The foci are located at $(0, 0)$ and $(250, 0)$.

32. ellipse with center $(0, -2)$, vertical major axis of length 5, minor axis of length 3