

10-6 Practice

Form G

Translating Conic Sections

Write the standard-form equation of an ellipse with the given characteristics. Sketch the ellipse.

1. vertices (7, 3) and (-3, 3), focus (5, 3)

3. vertices (11, -8) and (-19, -8), focus (5, -8)

Identify the center, vertices, and foci of each hyperbola.

5. $\frac{(x-5)^2}{144} - \frac{(y-9)^2}{256} = 1$

7. $\frac{(x-5)^2}{25} - \frac{(y-2)^2}{75} = 1$

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

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

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

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

- 15. Writing** A vertical ellipse has center $(0, -2)$, major axis length 5, and minor axis length 3. Describe how you can find the value of a . Then write the equation in standard form.

Mental Math Use mental math to identify the center of each conic section.

17. $\frac{(x+1)^2}{16} + \frac{(y+3)^2}{4} = 1$

19. $\frac{(x-2)^2}{5} + \frac{(y-5)^2}{6} = 1$

- 21. Reasoning** Explain how you can tell if an ellipse has been translated by looking at the standard form of the equation. Give an example.

The graph of each equation is to be translated 3 units right and 1 unit up. Write each new equation.

23. $16x^2 - 64x - 9y^2 - 36y - 172 = 0$