

Translating Conics HW

Lesson 5

Identify the conic section represented by each equation, by first 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.

1. $4x^2 + 8x + 9y^2 - 36y + 4 = 0$

$$\frac{(x+1)^2}{9} + \frac{(y-2)^2}{4} = 1$$

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

$$\frac{(x-5)^2}{4} - \frac{(y-3)^2}{1} = 1$$

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

$$x^2 + (y+3)^2 = 36$$

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

$$(y+1)^2 = x-2$$

5. $4x^2 + y^2 + 8x - 4y = 8$

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

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

$$(x+1)^2 + (y-5)^2 = 64$$

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

7. Hyperbola with vertices $(0, 2)$ and $(4, 2)$, and foci $(-1, 2)$ and $(5, 2)$

$$\frac{(x-2)^2}{4} - \frac{(y-2)^2}{5} = 1$$

8. Ellipse with center $(0, 2)$, horizontal major axis of length 6, and minor axis of length 4

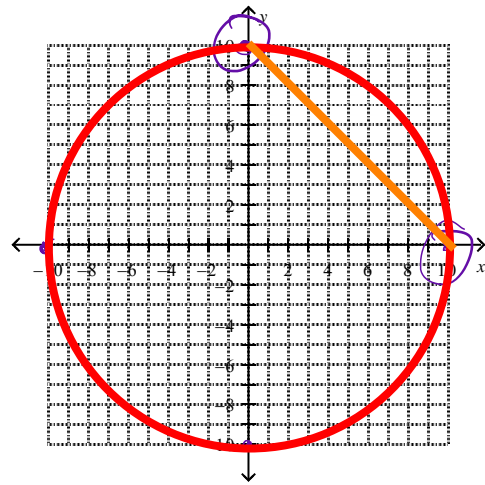
$$\frac{x^2}{9} + \frac{(y-2)^2}{4} = 1$$

Solve the system of equations by graphing.

9. $x^2 + y^2 = 100$

$x + y = 10$

$(0, 10)$
 $(10, 0)$



10. $3x - 2y = 6$

$\frac{x^2}{4} + \frac{y^2}{9} = 1$

$(0, -3)$
 $(2, 0)$

