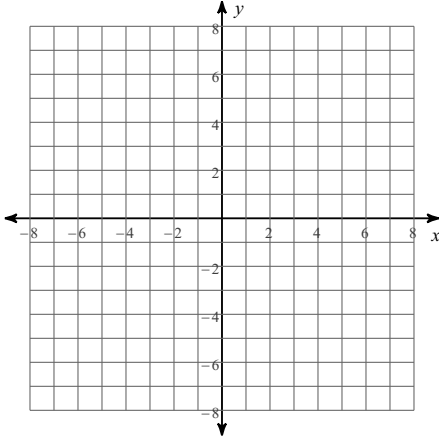


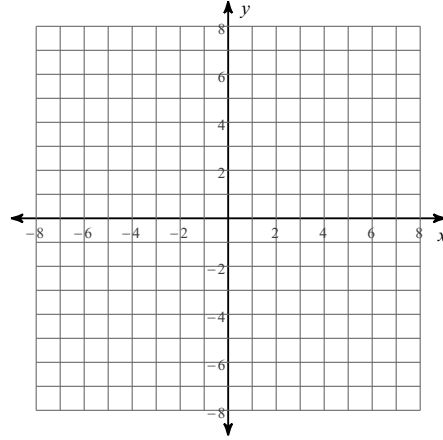
## Chapter 9 Review

**Graph the parabola.**

1)  $y + 4 = (x - 4)^2$



2)  $-2(x - 5) = (y - 5)^2$

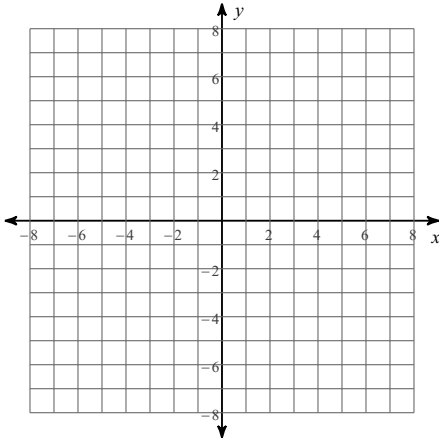
**Use the information provided to write the transformational form equation of each parabola.**

3) Vertex:  $(10, 4)$ , Focus:  $\left(10, \frac{17}{4}\right)$

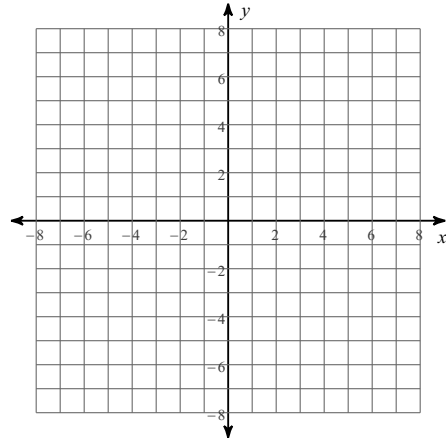
4) Vertex:  $(3, 2)$ , Directrix:  $y = \frac{5}{2}$

**Graph the circle.**

5)  $(x - 4)^2 + (y - 4)^2 = 4$



6)  $(x + 2)^2 + y^2 = 11$



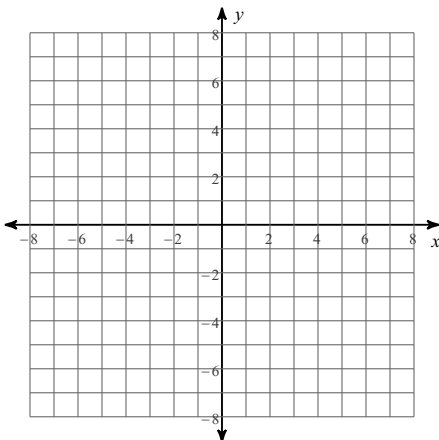
**Use the information provided to write the standard form equation of each circle.**

7) Center:  $(16, 0)$   
Radius: 3

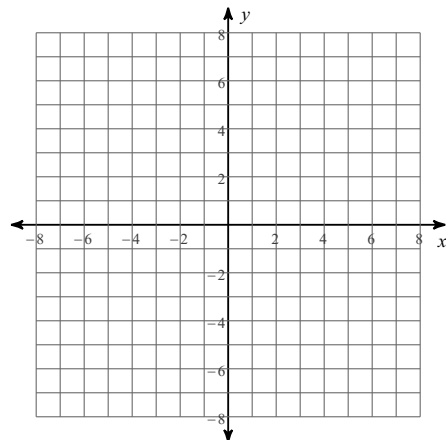
8) Center:  $(-14, -1)$   
Point on Circle:  $(-10, -2)$

**Graph the ellipse.**

9)  $\frac{(x - 1)^2}{25} + \frac{(y - 4)^2}{9} = 1$



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



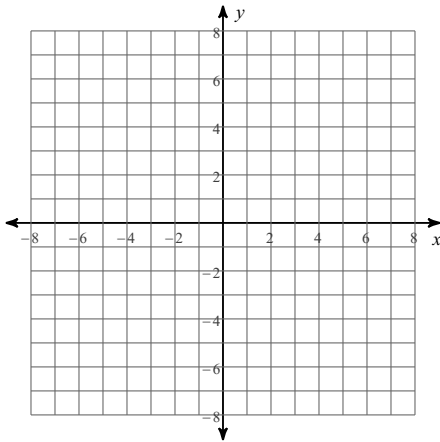
Use the information provided to write the standard form equation of each ellipse.

11) Vertices:  $(-10, 10), (-10, -6)$   
 Co-vertices:  $(-5, 2), (-15, 2)$

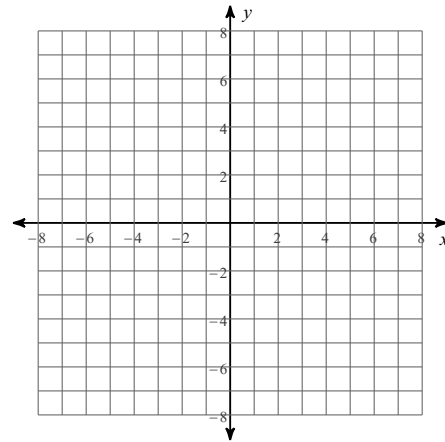
12) Vertices:  $(2, -1 + 4\sqrt{10}), (2, -1 - 4\sqrt{10})$   
 Co-vertices:  $(2 + \sqrt{110}, -1), (2 - \sqrt{110}, -1)$

Graph the hyperbola.

13)  $\frac{(y + 2)^2}{5} - \frac{x^2}{25} = 1$



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



Use the information provided to write the standard form equation of each hyperbola.

15) Vertices:  $(-8, -3), (-8, -13)$   
 Foci:  $(-8, -8 + \sqrt{194}), (-8, -8 - \sqrt{194})$

16) Vertices:  $(8, 6), (8, -12)$   
 Foci:  $(8, -3 + 9\sqrt{2}), (8, -3 - 9\sqrt{2})$

**Classify each conic section and identify the lines of symmetry.**

$$17) \frac{(x-1)^2}{36} + \frac{(y-2)^2}{9} = 1$$

$$18) \frac{y^2}{20} - \frac{x^2}{20} = 1$$

$$19) \left(x + \frac{5}{2}\right)^2 + \left(y - \frac{7}{2}\right)^2 = 4$$

$$20) \frac{(x-1)^2}{9} + \frac{(y-1)^2}{4} = 1$$

$$21) \frac{(x-1)^2}{15} - \frac{(y+2)^2}{5} = 1$$

$$22) y = -(x-1)^2 - 6$$

**Classify each conic section and write its equation in standard form.**

$$23) 9x^2 + y^2 + 6y = 0$$

$$24) x^2 + y^2 + 8x - 8y + 28 = 0$$

**Solve each question.**

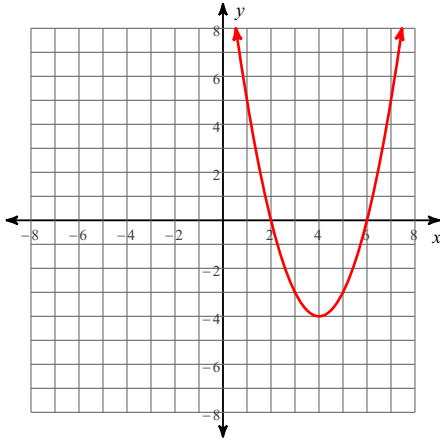
25) DeShawn and Willie left the airport at the same time. They traveled in opposite directions. Willie traveled 5 mph faster than DeShawn. After five hours they were 575 mi. apart. Find DeShawn's speed.

26) Natalie can pick forty bushels of apples in 15 hours. Jacob can pick the same amount in 8 hours. Find how long it would take them if they worked together.

## Chapter 9 Review

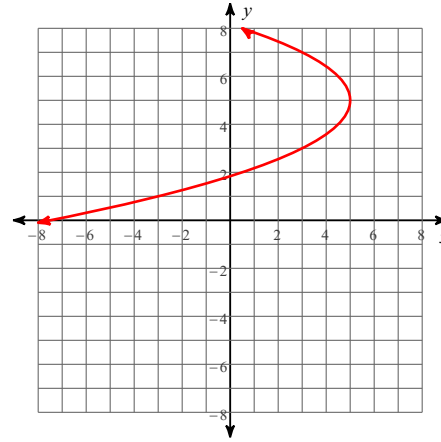
Graph the parabola.

1)  $y + 4 = (x - 4)^2$



Vertex:  $(4, -4)$   
 Focus:  $(4, -\frac{15}{4})$   
 Axis of Sym.:  $x = 4$   
 Directrix:  $y = -\frac{17}{4}$

2)  $-2(x - 5) = (y - 5)^2$



Vertex:  $(5, 5)$   
 Focus:  $(\frac{9}{2}, 5)$   
 Axis of Sym.:  $y = 5$   
 Directrix:  $x = \frac{11}{2}$

Use the information provided to write the transformational form equation of each parabola.

3) Vertex:  $(10, 4)$ , Focus:  $(10, \frac{17}{4})$

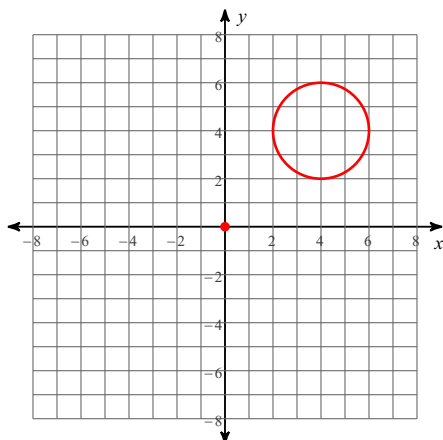
$$y - 4 = (x - 10)^2$$

4) Vertex:  $(3, 2)$ , Directrix:  $y = \frac{5}{2}$

$$-2(y - 2) = (x - 3)^2$$

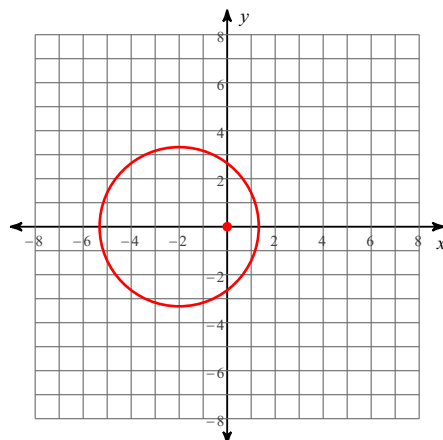
**Graph the circle.**

5)  $(x - 4)^2 + (y - 4)^2 = 4$



Center: (4, 4)  
Radius: 2

6)  $(x + 2)^2 + y^2 = 11$



Center: (-2, 0)  
Radius:  $\sqrt{11}$

**Use the information provided to write the standard form equation of each circle.**

- 7) Center: (16, 0)  
Radius: 3

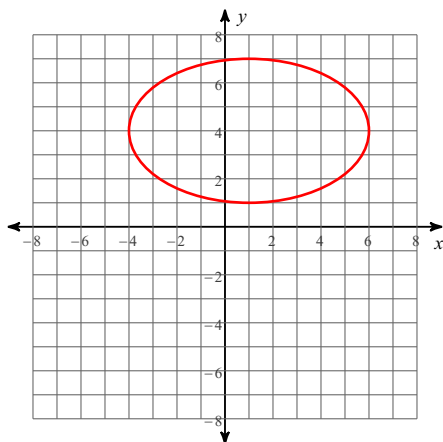
$(x - 16)^2 + y^2 = 9$

- 8) Center: (-14, -1)  
Point on Circle: (-10, -2)

$(x + 14)^2 + (y + 1)^2 = 17$

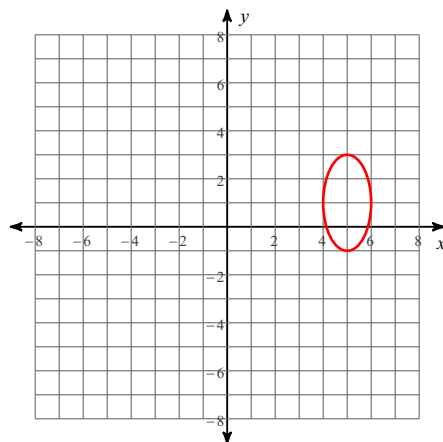
**Graph the ellipse.**

9)  $\frac{(x - 1)^2}{25} + \frac{(y - 4)^2}{9} = 1$



Vertices: (6, 4)  
(-4, 4)  
Foci: (5, 4)  
(-3, 4)  
Major Axis: 10 units  
Minor Axis: 6 units

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



Vertices: (5, 3)  
(5, -1)  
Foci:  $(5, 1 + \sqrt{3})$   
 $(5, 1 - \sqrt{3})$   
Major Axis: 4 units  
Minor Axis: 2 units

Use the information provided to write the standard form equation of each ellipse.

- 11) Vertices:  $(-10, 10), (-10, -6)$   
 Co-vertices:  $(-5, 2), (-15, 2)$

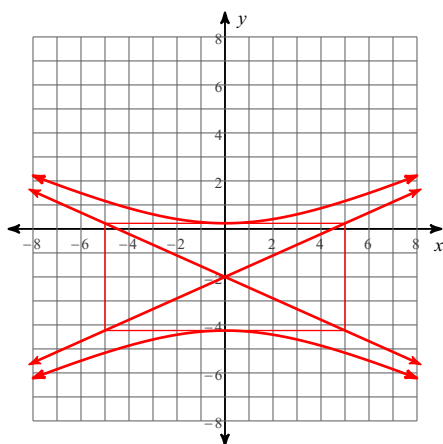
$$\frac{(x + 10)^2}{25} + \frac{(y - 2)^2}{64} = 1$$

- 12) Vertices:  $(2, -1 + 4\sqrt{10}), (2, -1 - 4\sqrt{10})$   
 Co-vertices:  $(2 + \sqrt{110}, -1), (2 - \sqrt{110}, -1)$

$$\frac{(x - 2)^2}{110} + \frac{(y + 1)^2}{160} = 1$$

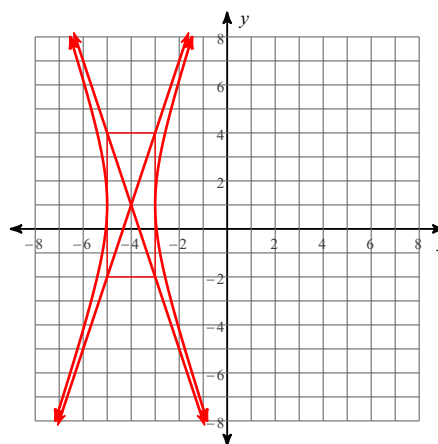
Graph the hyperbola.

- 13)  $\frac{(y + 2)^2}{5} - \frac{x^2}{25} = 1$



Vertices:  $(0, -2 + \sqrt{5})$   
 $(0, -2 - \sqrt{5})$   
 Foci:  $(0, -2 + \sqrt{30})$   
 $(0, -2 - \sqrt{30})$

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



Vertices:  $(-3, 1)$   
 $(-5, 1)$   
 Foci:  $(-4 + \sqrt{10}, 1)$   
 $(-4 - \sqrt{10}, 1)$

Use the information provided to write the standard form equation of each hyperbola.

- 15) Vertices:  $(-8, -3), (-8, -13)$   
 Foci:  $(-8, -8 + \sqrt{194}), (-8, -8 - \sqrt{194})$

$$\frac{(y + 8)^2}{25} - \frac{(x + 8)^2}{169} = 1$$

- 16) Vertices:  $(8, 6), (8, -12)$   
 Foci:  $(8, -3 + 9\sqrt{2}), (8, -3 - 9\sqrt{2})$

$$\frac{(y + 3)^2}{81} - \frac{(x - 8)^2}{81} = 1$$

**Classify each conic section and identify the lines of symmetry.**

$$17) \frac{(x-1)^2}{36} + \frac{(y-2)^2}{9} = 1$$

Ellipse

$$18) \frac{y^2}{20} - \frac{x^2}{20} = 1$$

Hyperbola

$$19) \left(x + \frac{5}{2}\right)^2 + \left(y - \frac{7}{2}\right)^2 = 4$$

Circle

$$20) \frac{(x-1)^2}{9} + \frac{(y-1)^2}{4} = 1$$

Ellipse

$$21) \frac{(x-1)^2}{15} - \frac{(y+2)^2}{5} = 1$$

Hyperbola

$$22) y = -(x-1)^2 - 6$$

Parabola

**Classify each conic section and write its equation in standard form.**

$$23) 9x^2 + y^2 + 6y = 0$$

Ellipse

$$x^2 + \frac{(y+3)^2}{9} = 1$$

$$24) x^2 + y^2 + 8x - 8y + 28 = 0$$

Circle

$$(x+4)^2 + (y-4)^2 = 4$$

**Solve each question.**

25) DeShawn and Willie left the airport at the same time. They traveled in opposite directions. Willie traveled 5 mph faster than DeShawn. After five hours they were 575 mi. apart. Find DeShawn's speed.

55 mph

26) Natalie can pick forty bushels of apples in 15 hours. Jacob can pick the same amount in 8 hours. Find how long it would take them if they worked together.

5.22 hours