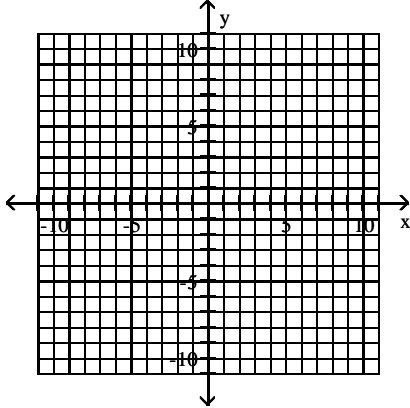


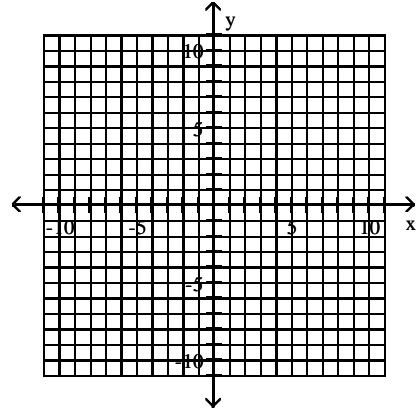
Find the direction the parabola opens, the coordinates of the vertex, the equation of the axis of symmetry and draw the graph.

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

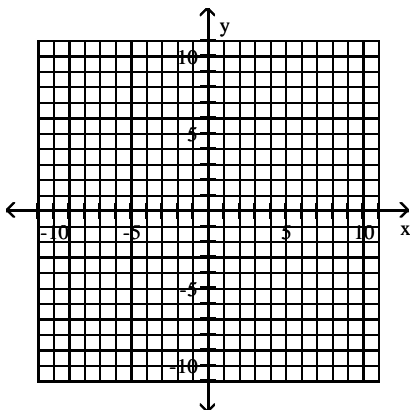


Find the center and radius and draw the graph.

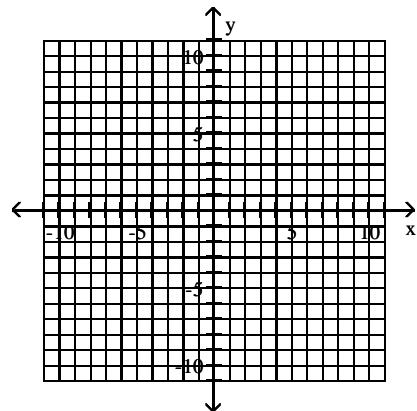
3)  $(x - 4)^2 + (y - 4)^2 = 9$



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



4)  $x^2 + y^2 + 6x + 2y - 6 = 0$



**Find the distance between the two points.**

5)  $(4, -5)$  and  $(6, -1)$

**The coordinates of the center of a circle and a point on the circle are given. Find the radius of the circle.**

8) Center:  $(8, -1)$ , point on the circle  $(16, -7)$

**The center and radius of a circle are given. Write the equation of each circle in standard form.**

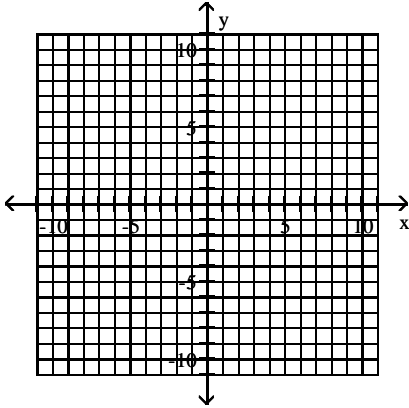
6) Center:  $(-9, 4)$ ,  $r = 10$

**Use the given information to write the equation of the circle in standard form.**

7) Center:  $(3, -4)$ , point on the circle  $(9, 4)$

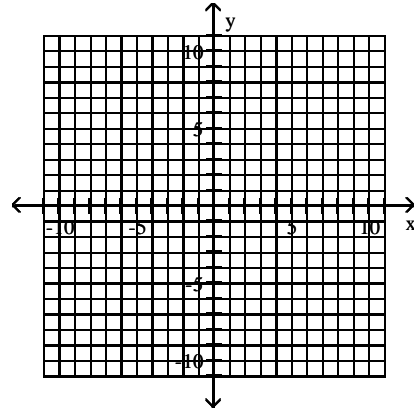
Graph the ellipse. Give the points above, below, to the left, and to the right of the center.

$$1) \frac{x^2}{9} + \frac{y^2}{49} = 1$$

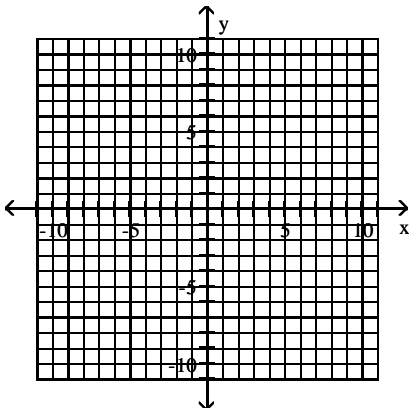


Graph the hyperbola and label all intercepts.

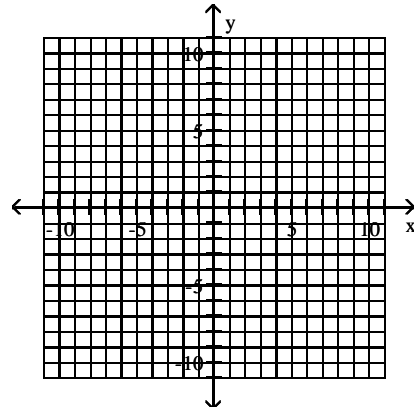
$$4) \frac{y^2}{4} - \frac{x^2}{25} = 1$$



$$2) \frac{(x-3)^2}{25} + \frac{(y+3)^2}{36} = 1$$



$$5) 9x^2 - 16y^2 = 144$$



Determine whether the graph of the equation is a circle, parabola, ellipse, or hyperbola. Do not graph.

$$3) 16y^2 + 36x^2 = 576$$

Determine whether the graph of the equation is a circle, parabola, ellipse, or hyperbola. Do not graph.

$$6) x^2 + y^2 - 6x - 8y + 16 = 0$$

Solve the system of equations.

1) 
$$\begin{cases} y = x^2 - 6x + 9 \\ x + y = 5 \end{cases}$$

4) 
$$\begin{cases} 3x^2 - 4y^2 = -52 \\ 3x^2 + 2y^2 = 98 \end{cases}$$

2) 
$$\begin{cases} x^2 + y^2 = 13 \\ x - y = 1 \end{cases}$$

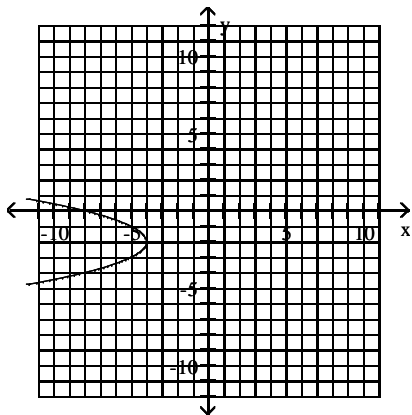
5) 
$$\begin{cases} x^2 + y^2 = 9 \\ y = x^2 - 3 \end{cases}$$

3) 
$$\begin{cases} xy = 1 \\ x^2 + y^2 = 2 \end{cases}$$

Answer Key WORKSHEET 13.1

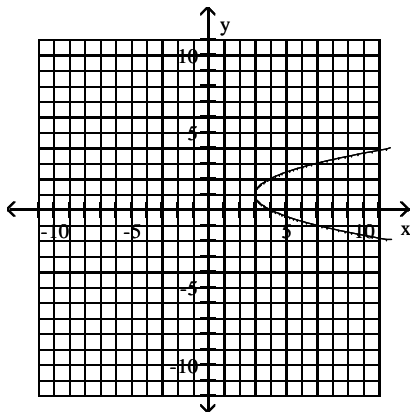
Testname: W\_13\_1

1)



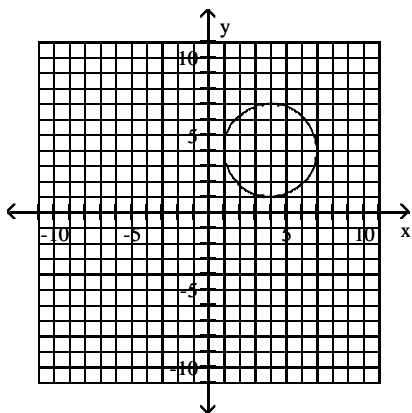
opens left; vertex  $(-4, -2)$ ;  
axis of symmetry  $y = -2$

2)



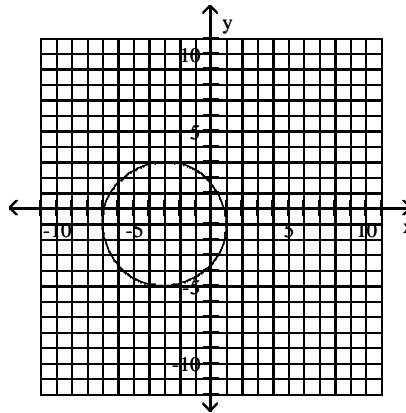
opens right; vertex  $(3, 1)$ ;  
axis of symmetry  $y = 1$

3)



center  $(4, 4)$ ; radius 3

4)



center  $(-3, -1)$ ; radius 4

5)  $2\sqrt{5}$

6)  $(x + 9)^2 + (y - 4)^2 = 100$

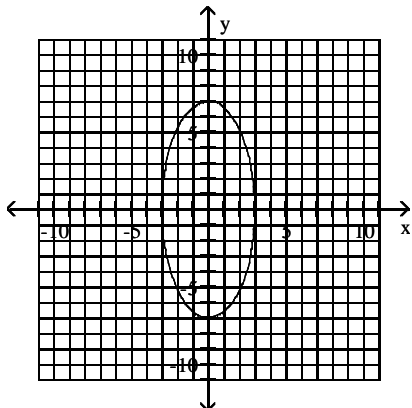
7)  $(x - 3)^2 + (y + 4)^2 = 100$

8) 10

Answer Key WORKSHEET 13.2

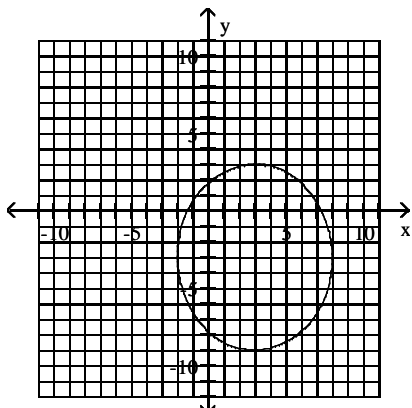
Testname: W\_13\_2

1)



$(-3, 0), (3, 0), (0, 7), (0, -7)$

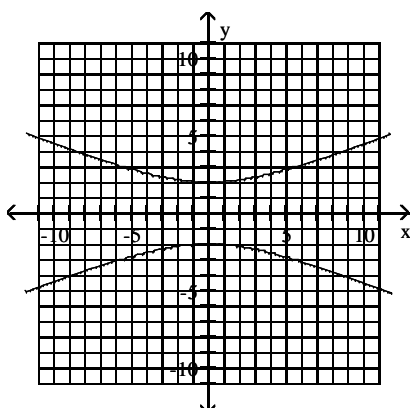
2)



$(-2, -3), (8, -3), (3, 3), (3, -9)$

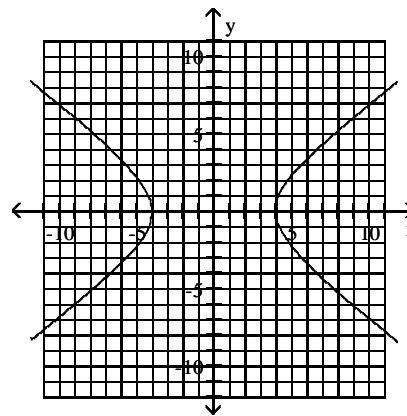
3) ellipse

4)



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

5)



$(-4, 0), (4, 0)$

6) circle

Answer Key WORKSHEET 13.3

Testname: W\_13\_3

1)  $(4, 1), (1, 4)$

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

3)  $(-1, -1), (1, 1)$

4)  $(4, 5), (-4, 5), (4, -5), (-4, -5)$

5)  $(-\sqrt{5}, 2), (0, -3), (\sqrt{5}, 2)$