Equation: _____   Equation: _____

Determine the vertex, the *p* value, the direction of opening, the focus, the equation for the directrix, and the equation for the axis of symmetry. Graph the vertex, the focus, the directrix, the axis of symmetry, as well as two additional points to complete the graph. Any non-integer values should be written as reduced fractions. No decimals!!
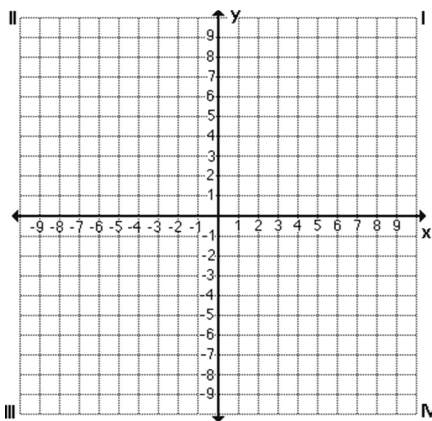
1. $y^2 = 12(x-5)$

Vertex $(\quad , \quad)$

$p =$ _____

Opens _____

Focus $(\quad , \quad)$

Directrix _____

Axis of Symmetry _____

2. $(x+3)^2 = -24y$

Vertex $(\quad , \quad)$

$p =$ _____

Opens _____

Focus $(\quad , \quad)$

Directrix _____
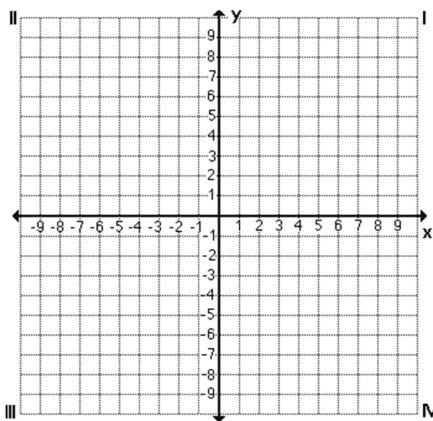
Axis of Symmetry _____

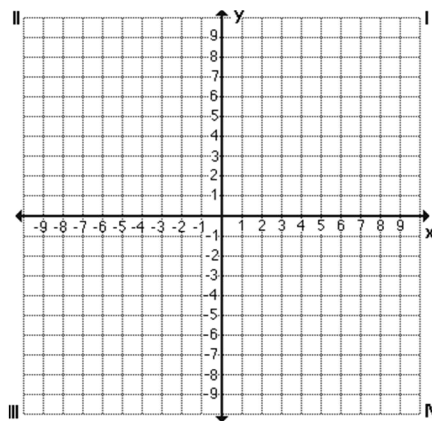**3.** $(y-1)^2 = -6(x-5)$

Vertex $(\quad , \quad)$

$p =$ _____

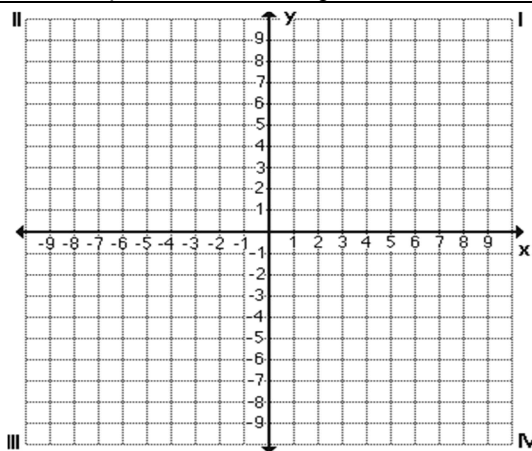Opens _____

Focus $(\quad , \quad)$
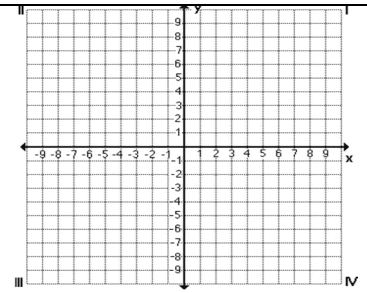
Directrix _____

Axis of Symmetry _____

Write the standard form of the equation of the parabola with the given focus and vertex.

4. Vertex = $(0 , 0)$; Focus = $(6 , 0)$
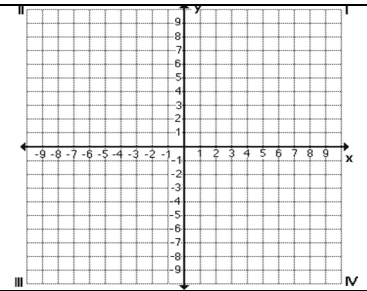
Standard Form:

_____

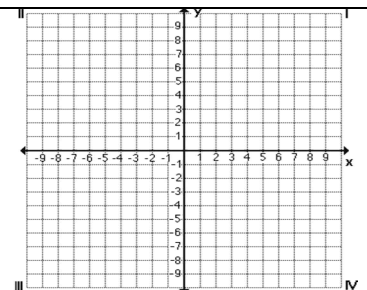**5.** Vertex = $(0, 0)$; Focus = $(0, -4)$

Standard Form: _____

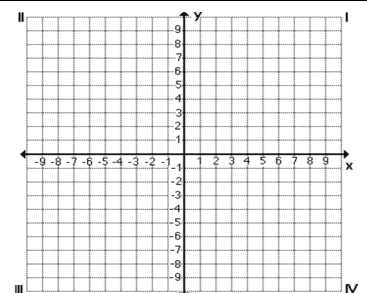**6.** Vertex = $(0, 0)$; Focus = $(2, 0)$

Standard Form: _____

Write the standard form of the equation of the parabola with the given directrix and vertex.
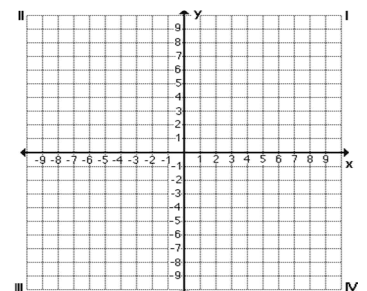
7. Vertex = $(0, 0)$; Directrix $x = 3$

Standard Form: _____

8. Vertex = $(0, 0)$; Directrix $y = 1$

Standard Form: _____
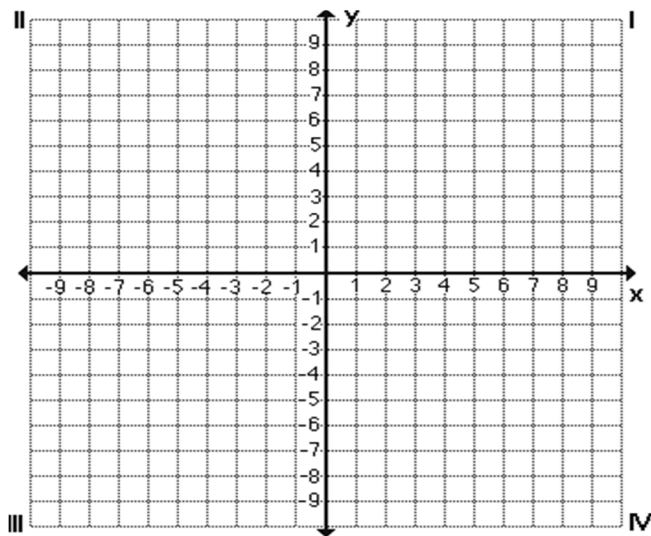
9. Vertex = $(0, 0)$; Directrix $y = -4$

Standard Form: _____

Determine the center, the value of the radius, and four points. Graph the center and the four points to create a sketch of the circle. No decimals!!
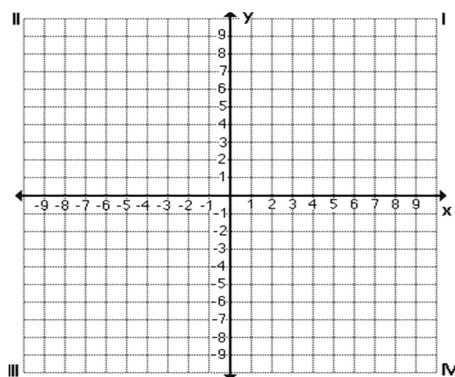
10. $(x+1)^2 + (y-5)^2 = 36$

Center (,)

$r =$ _____

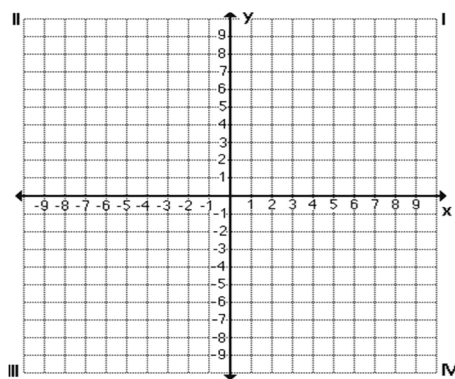**11.** $x^2 + (y+3)^2 = 16$

Center (,)

$r =$ _____

12. $(x+3)^2 + y^2 = 64$

Center (,)

$r =$ _____

Write the standard form of the equation of the circle with the given radius and given center.

13. $r = 3$, Center = $(0, -4)$

Equation: _____

14. $r = 11$, Center = $(2, -4)$

Equation: _____

15. $r = \sqrt{5}$, Center = $(0, 0)$

Equation: _____

Write the standard form of the equation of the circle that passes through the given point and the given center.	
16. **Point =** $(-2, 6)$ **Center =** $(0, 0)$	**17.** **Point =** $(0, 2)$ **Center =** $(3, -5)$
Equation: _____	**Equation:** _____

Use the equation of each circle to determine the center and the radius. NO DECIMAL ANSWERS!	
20. $(x-2)^2 + (y+3)^2 = 40$	**21.** $(x+3)^2 + (y-5)^2 = 28$
Center: $($, $)$ **Radius:** _____	**Center:** $($, $)$ **Radius:** _____
20. $x^2 + (y+10)^2 = 50$	**21.** $(x-2)^2 + (y-8)^2 = 24$
Center: $($, $)$ **Radius:** _____	**Center:** $($, $)$ **Radius:** _____