The Parabola

Standard Form of a Parabola

$(x-h)^2 = 4p(y-k)$
$vertex = (h,k)$
$focus = (h,k+p)$
$directrix: y = k-p$

$(y-k)^2 = 4p(x-h)$
$vertex = (h,k)$
$focus = (h+p,k)$
$directrix: x = h-p$

1. Graph
(Similar to p.385 #11-18)

$$x^2 = -8y$$

2. Graph
(Similar to p.385 #11-18)

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

3. Find the equation of the parabola described and graph it
(Similar to p.385 #19-36)

$$Focus: (0,5) \quad Vertex: (0,0)$$

4. Find the equation of the parabola described and graph it
(Similar to p.385 #19-36)

$$Vertex: (5,-1) \quad Focus: (8,-1)$$

5. Find the equation of the parabola described and graph it
(Similar to p.385 #19-36)

$Focus: (-2,3) \quad Directrix: y = -5$

6. Find the vertex, focus, and directrix of each parabola. Graph the equation
(Similar to p.385 #37-54)

$y^2 = -8x$

7. Find the vertex, focus, and directrix of each parabola. Graph the equation
(Similar to p.385 #37-54)

$(y+3)^2 = -8(x-1)$

8. Find the vertex, focus, and directrix of each parabola. Graph the equation
(Similar to p.385 #37-54)

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

9. Find the vertex, focus, and directrix of each parabola. Graph the equation
(Similar to p.385 #37-54)

$x^2 + 8x - 4y + 28 = 0$

10. Find the vertex, focus, and directrix of each parabola. Graph the equation
(Similar to p.385 #37-54)

$y^2 - 6y - 8x + 1 = 0$

11. Find the vertex, focus, and directrix of each parabola. Graph the equation
(Similar to p.385 #37-54)

$$y^2 + 4y = -x + 7$$