The Parabola

| **Vertical Axis of Symmetry:**	**Horizontal Axis of Symmetry:**
$$(x-h)^2 = 4p(y-k)$$	$$(y-k)^2 = 4p(x-h)$$
Vertex: *(h, k)* **Focus:** *(h, k + p)* **Directrix:** $y = k - p$	**Vertex:** *(h, k)* **Focus:** *(h + p, k)* **Directrix:** $x = h - p$
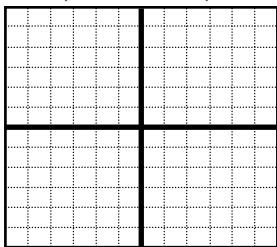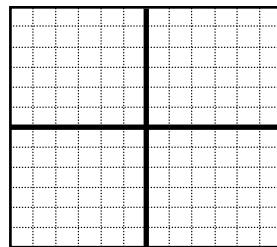
1) Graph the parabola. Identify the vertex focus and directrix.

$$-2x^2 = 16y$$
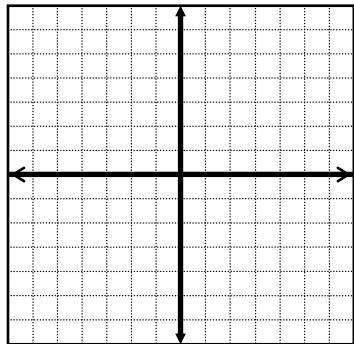
2) Graph the parabola. Identify the vertex focus and directrix.

$$6x = y^2$$
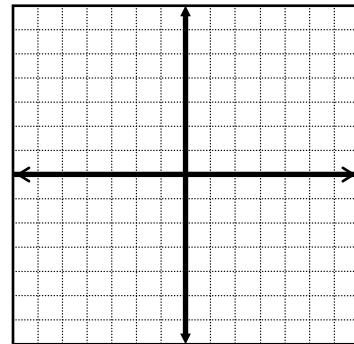
3) Graph the parabola. Identify the vertex focus and directrix.

$$(y-2)^2 = 4(x-3)$$
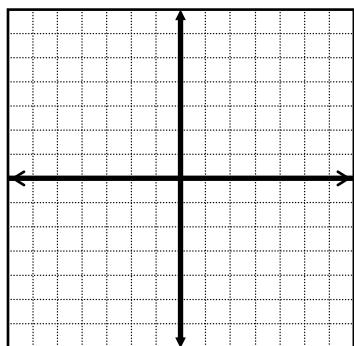
**4) Graph the parabola. Identify the vertex focus and directrix.**

$$(x+1)^2 = -6(y-2)$$
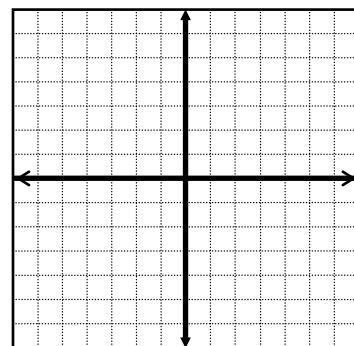
Write the equation of the parabola in standard form and graph.

5) $y^2 - 2y + 16x - 31 = 0$

6) $x^2 + 10x - 4y + 1 = 0$
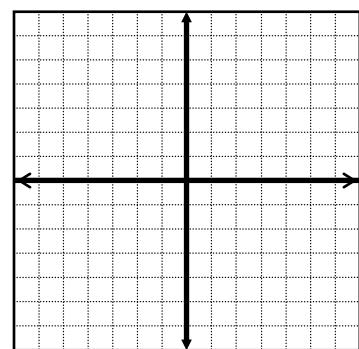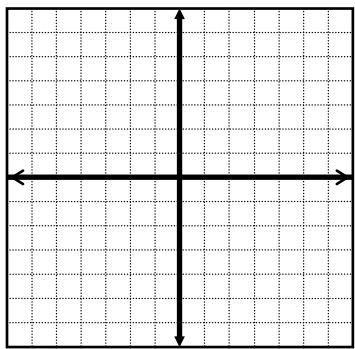
7) Write an equation of the parabola with vertex (1, -3) and focus (0, -3).
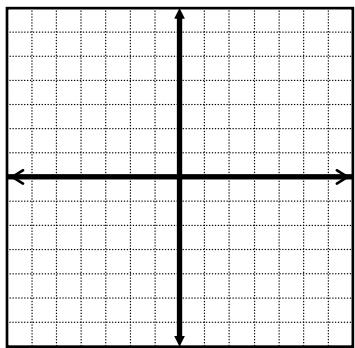
8) Write an equation of the parabola with vertex (3, 0) and directrix y = -2.