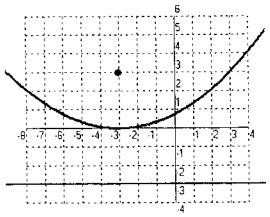
Pre-Calculus Worksheet

I. Write each parabola's equation in standard form given the following...

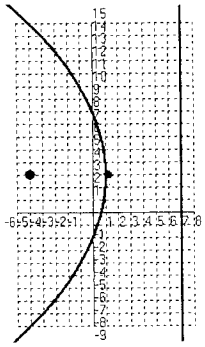
1. Vertex $(0,0)$ and focus $(0,8)$ $x^2 = 32y$	2. Vertex $(0,0)$ and directrix $x = 12$ $y^2 = -48x$
3. Vertex $(2,2)$ and focus $(6,2)$ $(y-2)^2 = 16(x-2)$	4. Vertex $(-3,4)$ and directrix $y = 6$ $(x+3)^2 = -8(y-4)$
5. Vertex $(2,-6)$, $c = -2$, and axis of symmetry $x = 2$ $(x-2)^2 = -8(y+6)$	6. Vertex $(3,-5)$, horizontal axis of symmetry, latus rectum length of 12, and opens to the left $(y+5)^2 = -12(x-3)$
7. Vertex $(3,0)$, $c = 2$, and vertical axis of symmetry $(x-3)^2 = 8y$	8. Vertex $(-5,3)$ and directrix $x = -2$ $(y-3)^2 = -12(x+5)$

9.



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

10.



$(y-3)^2 = -24(x-1)$

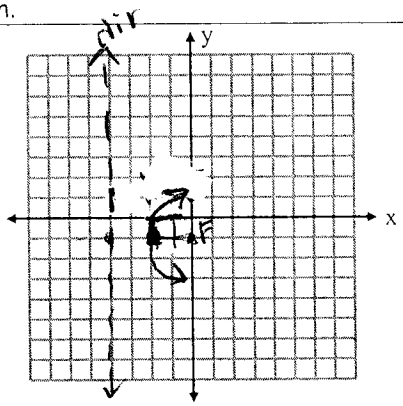
II. Given each parabola, find the requested information and then graph.

11. $8(x+2) = (y+1)^2$

Vertex: (-2 , -1) Direction Opening: right

Axis of Symmetry: y = -1 Focus: (0 , -1)

Directrix: x = -4



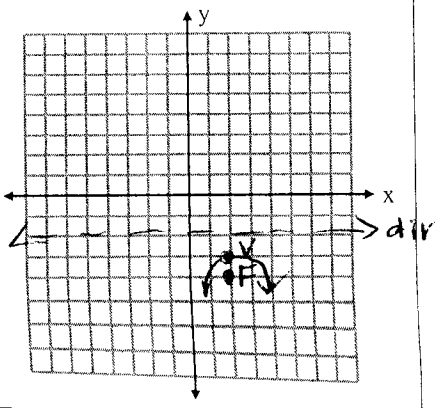
12. $x^2 - 4x + 4y + 16 = 0$

Vertex: (2 , -3) Direction Opening: down

Axis of Symmetry: x = 2 Focus: (2 , -4)

Directrix: y = -2

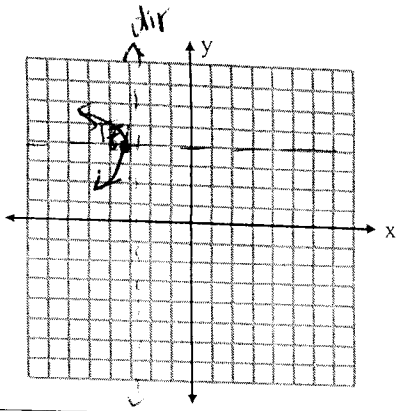
Standard Form of the Parabola: $(x-2)^2 = -4(y+3)$



13. $y^2 + 2x - 8y + 22 = 0$

Vertex: (-3 , 4) Direction Opening: left

Axis of Symmetry: y = 4 Focus: (-3.5 , 4)

Directrix: x = -2.5

Standard Form of the Parabola: $(y-4)^2 = -2(x+3)$