Pre-Calculus Worksheet Name: _____

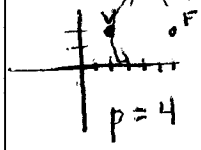
WS Parabolas Period: _____

I. Write each parabola's equation (in standard form)

1. Vertex $(0,0)$ and focus $(0,8)$

2. Vertex $(0,0)$ and directrix $x=12$

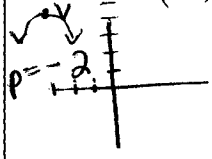
3. Vertex $(2,2)$ and focus $(6,2)$



$(y-k)^2 = 4p(x-h)$

$\boxed{(y-2)^2 = 16(x-2)}$

4. Vertex $(-3,4)$ and directrix $y=6$



$(x-h)^2 = 4p(y-k)$

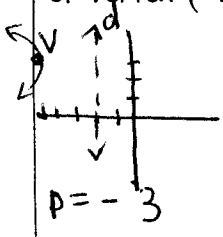
$\boxed{(x+3)^2 = -8(y-4)}$

5. Vertex $(2,-6)$, $c=-2$, and axis of symmetry $x=2$

6. Vertex $(3,-5)$, horizontal axis of symmetry, focal chord length of 12, and opens to the left

7. Vertex $(3,0)$, $c=2$, and vertical axis of symmetry

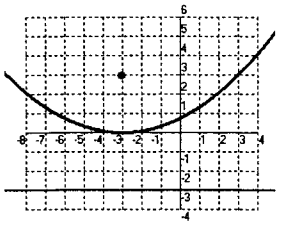
8. Vertex $(-5,3)$ and directrix $x=-2$



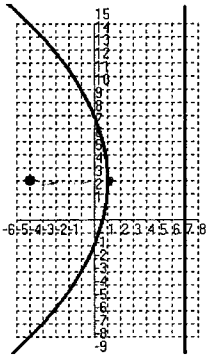
$(y-k)^2 = 4p(x-h)$

$\boxed{(y-3)^2 = -12(x+5)}$

9.



10.



$V(\overset{h}{1},\overset{k}{3})$ $p=-6$

$(y-k)^2=4p(x-h)$

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

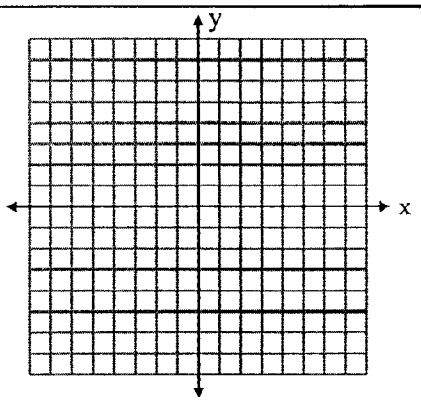
II. Given each parabola, find the requested information and then graph.

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

Vertex: (_____, _____) Direction Opening: _____

Axis of Symmetry: _____ = _____ Focus: (_____, _____)

Directrix: _____ = _____



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

$x^2-4x=-4y-16$

$(x-2)^2=-4y-12$

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

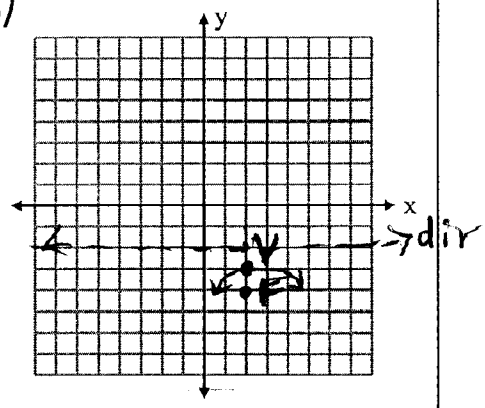
$4p=-4$

$p=-1$

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

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

Directrix: y = -2



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

$y^2-8y=-2x-22$

$(y-4)^2=-2x-6$

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

$4p=-2$

$p=-\frac{1}{2}$

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

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

Directrix: x = -2.5