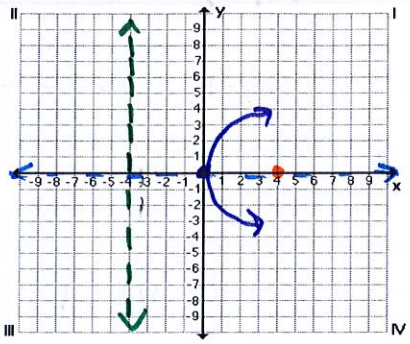
Pre-Calculus **Parabolas HW Worksheet** **Name**_____
Day 1

Graph the parabola and identify the vertex, directrix, focus, and axis of symmetry.

1. $y^2 = 16x$ opens R

$4p = 16$
$p = 4$



Vertex (0,0)

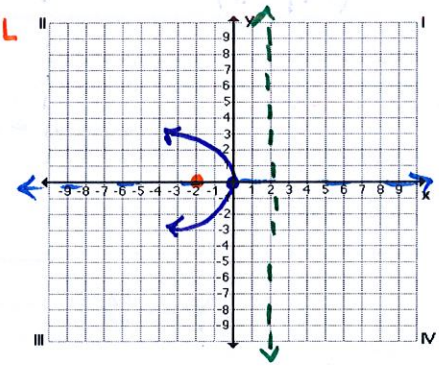
Focus (4,0)

Directrix $x = -4$

Axis of Symmetry $y = 0$

2. $y^2 = -8x$ opens L

$4p = -8$
$p = -2$



Vertex (0,0)

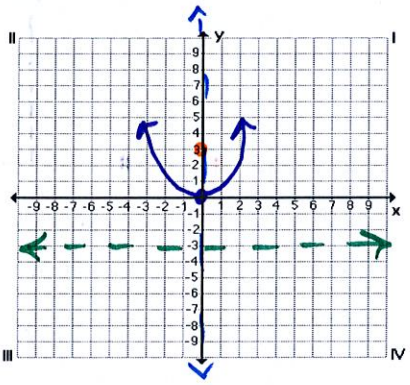
Focus (-2,0)

Directrix $x = 2$

Axis of Symmetry $y = 0$

3. $x^2 = 12y$ opens U

$4p = 12$
$p = 3$



Vertex (0,0)

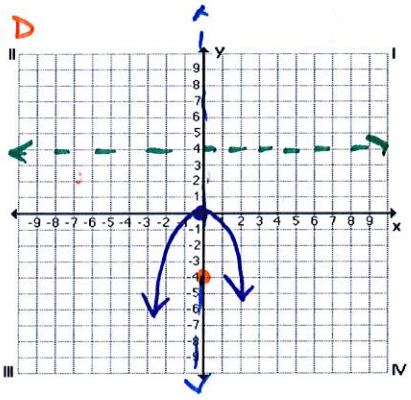
Focus (0,3)

Directrix $y = -3$

Axis of Symmetry $x = 0$

4. $x^2 + 16y = 0$ opens D

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



Vertex (0,0)

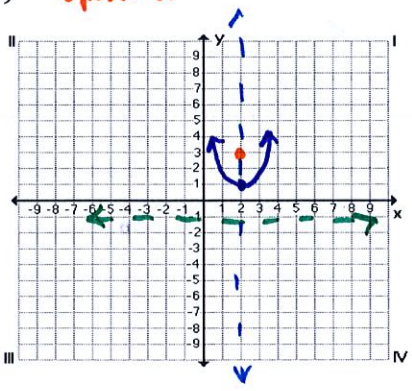
Focus (0,-4)

Directrix $y = 4$

Axis of Symmetry $x = 0$

5. $(x-2)^2 = 8(y-1)$ opens U

$4p = 8$
$p = 2$



Vertex (2,1)

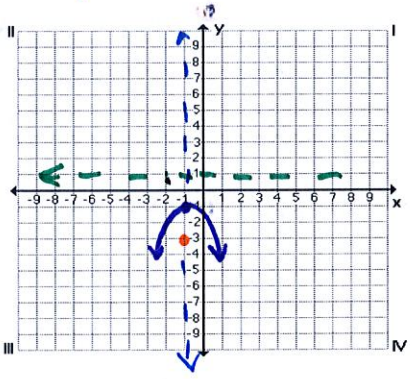
Focus (2,3)

Directrix $y = -1$

Axis of Symmetry $x = 2$

6. $(x+1)^2 = -8(y+1)$ opens D

$4p = -8$
$p = -2$



Vertex (-1,-1)

Focus (-1,-3)

Directrix $y = 1$

Axis of Symmetry $x = -1$

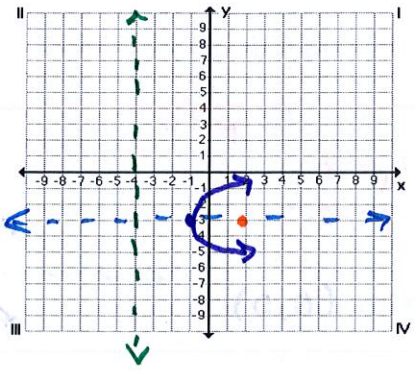
7. $(y+3)^2 = 12(x+1)$ opens R

$4p = 12$
$p = 3$

Vertex $(-1, -3)$

Focus $(2, -3)$

Directrix $x = -4$



Axis of Symmetry $y = -3$

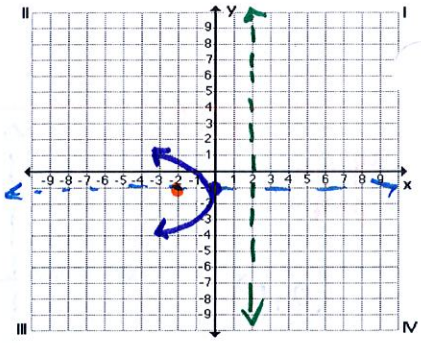
8. $(y+1)^2 = -8x$ opens L

$4p = -8$
$p = -2$

Vertex $(0, -1)$

Focus $(-2, -1)$

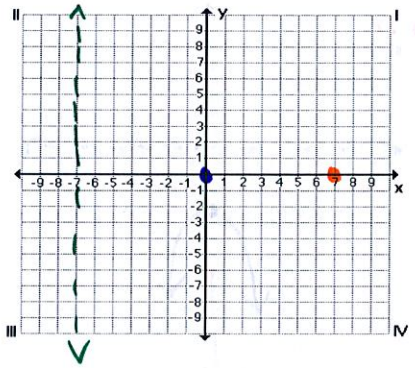
Directrix $x = 2$



Axis of Symmetry $y = -1$

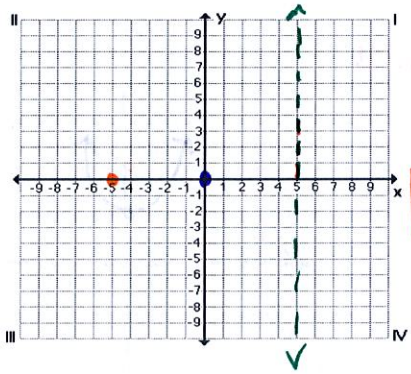
Write an equation in standard form for the parabola satisfying the given conditions.

9. Focus: $(7,\ 0)$; Directrix: $x = -7$



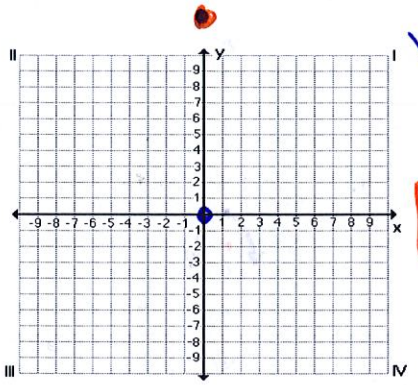
Vertex $(0,0)$
opens R
$p = 7$
$y^2 = 28x$

10. Focus: $(-5,\ 0)$; Directrix: $x = 5$



vertex $(0,0)$
opens L
$p = -5$
$y^2 = -20x$

11. Focus : $(0,\ 15)$; Directrix: $y = -15$

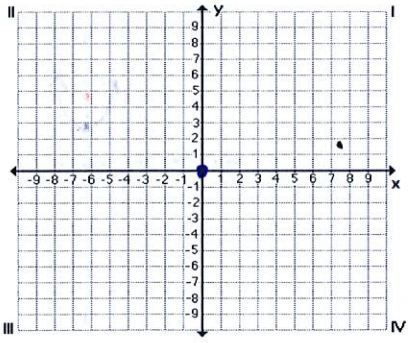


Vertex $(0,0)$
opens U
$p = 15$
$x^2 = 60y$

$y = -15$

12. Focus: $(0, -25)$; Directrix: $y = 25$

$y = 25$



vertex $(0,0)$
opens D
$p = -25$
$x^2 = -100y$

$(0, -25)$