

Parabola Graphing WS

Name Key

For each of the following, find the vertex, focus, directrix, and end points of the latus rectum. Also graph each parabola

1. $(x-2)^2 = 8(y+1)$ $4p=8$

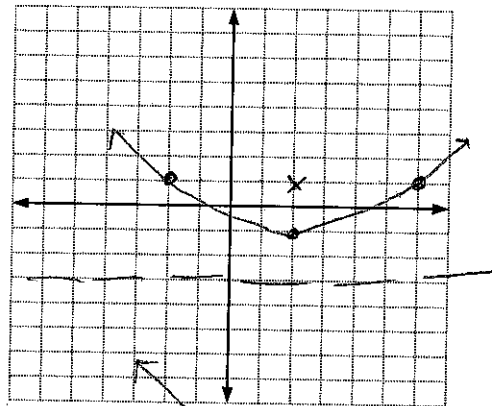
$p=2$

Vertex: $(2, -1)$

Focus: $(2, 1)$

Directrix: $y = -3$

E of LR: $(-2, 1)$ $(6, 1)$



2. $(y-2)^2 = -16(x-3)$ $4p=-16$

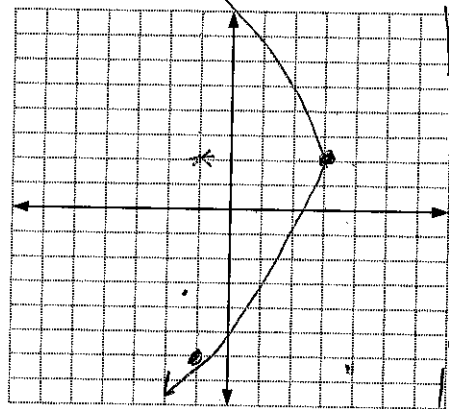
$p=-4$

Vertex: $(3, 2)$

Focus: $(-1, 2)$

Directrix: $x = 7$

E of LR: $(-1, 10)$ $(-1, -6)$



3. $(x-1)^2 = 12(y-1)$

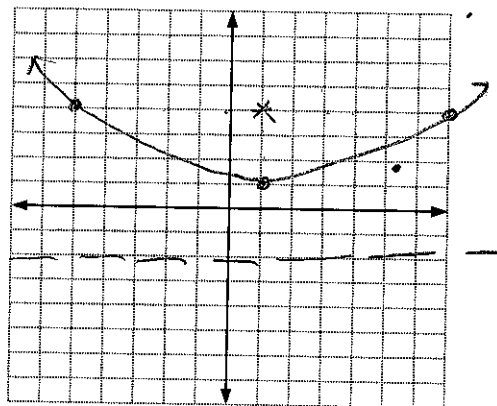
$4p=12$
 $p=3$

Vertex: $(1, 1)$

Focus: $(1, 4)$

Directrix: $y = -2$

E of LR: $(-5, 4)$ $(7, 4)$



4. $(y-4)^2 = 8(x-1)$

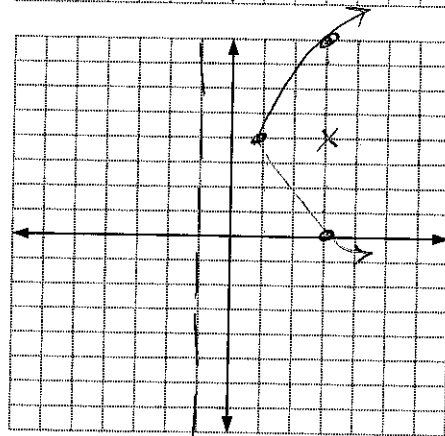
$4p=8$
 $p=2$

Vertex: $(1, 4)$

Focus: $(3, 4)$

Directrix: $x = -1$

E of LR: $(3, 8)$ $(3, 0)$



5. $2(x+2)^2 = 12y$ $(x+2)^2 = 6y$

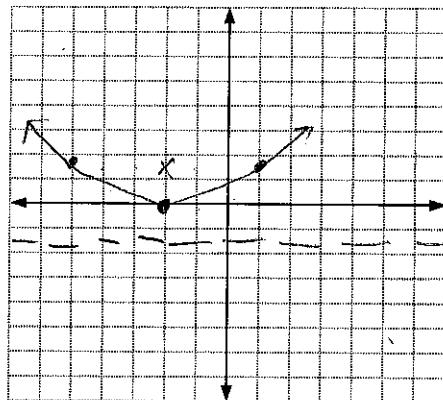
Vertex: $(-2, 0)$

Focus: $(-2, 1\frac{1}{2})$

Directrix: $y = -1\frac{1}{2}$

E of LR: $(-5, 1\frac{1}{2})(1, 1\frac{1}{2})$

$4p = 6$
 $p = \frac{6}{4} = \frac{3}{2}$



6. $y^2 + 4(x+2) = 0$ $y^2 = -4(x+2)$

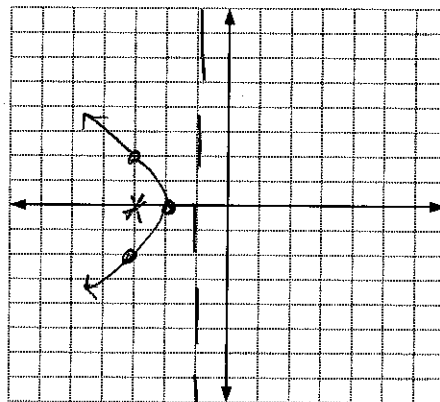
Vertex: $(-2, 0)$

Focus: $(-3, 0)$

Directrix: $x = -1$

E of LR: $(-3, 2)(-3, -2)$

$4p = -4$
 $p = -1$



7. $3(y-3)^2 = 21x$ $(y-3)^2 = 7x$

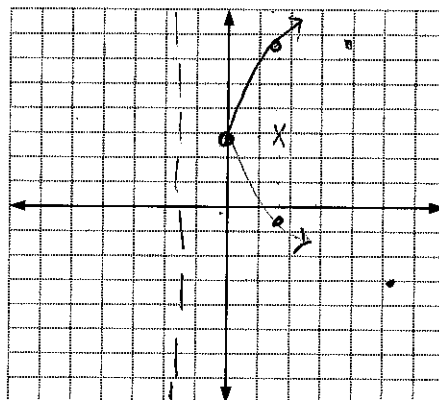
Vertex: $(0, 3)$

Focus: $(1\frac{3}{4}, 3)$

Directrix: $x = -1\frac{3}{4}$

E of LR: $(1\frac{3}{4}, 6\frac{1}{2})(1\frac{3}{4}, -\frac{1}{2})$

$4p = 7$
 $p = \frac{7}{4}$
 $p = 1\frac{3}{4}$



8. $y = \frac{1}{4}(x-3)^2 + 5$ $y-5 = \frac{1}{4}(x-3)^2$

Vertex: $(3, 5)$

Focus: $(3, 6)$

Directrix: $y = 4$

E of LR: $(1, 6)(5, 6)$

$\frac{1}{4}(x-3)^2 = y-5$
 $(x-3)^2 = 4(y-5)$

$4 = 4p$
 $p = 1$

