

Parabola Graphing WS

Name Fusion

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

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

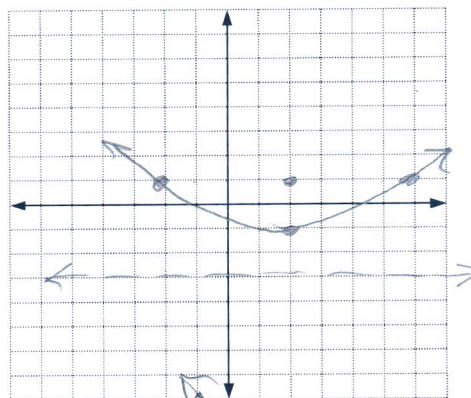
Vertex: (2, -1)

Focus: (2, 1)

Directrix: y = -3

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

up
4p = 8
p = 2



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

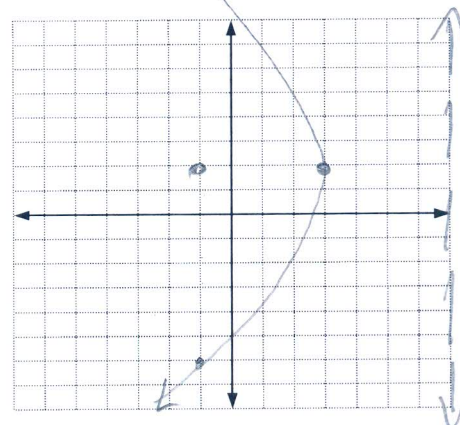
Vertex: (3, 2)

Focus: (-1, 2)

Directrix: x = 7

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

left
4p = -16
p = -4



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

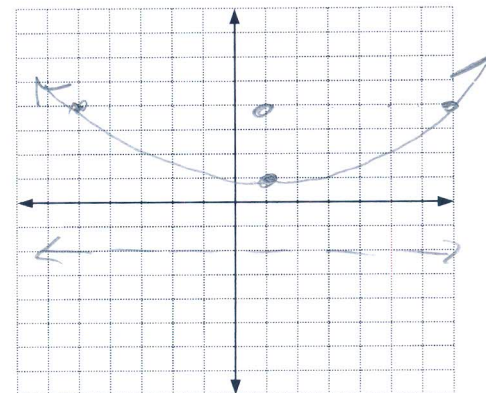
Vertex: (1, 1)

Focus: (1, 4)

Directrix: y = -2

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

up
4p = 12
p = 3



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

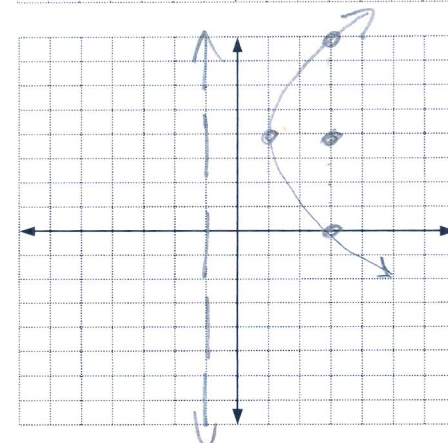
Vertex: (1, 4)

Focus: (3, 4)

Directrix: x = -1

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

right
4p = 8
p = 2



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

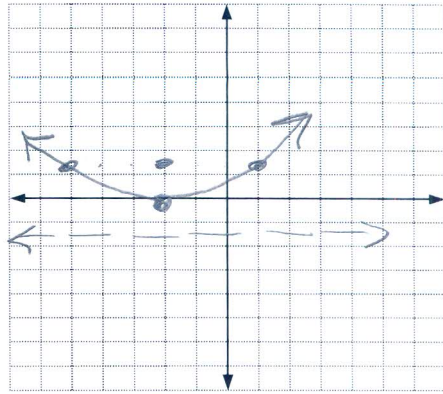
$$\text{Vertex: } \underline{(-2, 0)}$$

$$\text{Focus: } \underline{(-2, 1.5)}$$

$$\text{Directrix: } \underline{y = -1.5}$$

$$\text{E of LR: } \underline{(-5, 1.5) (1, 1.5)}$$

$$\begin{aligned} &\text{up} \\ &4p = 6 \\ &p = 1.5 \end{aligned}$$



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

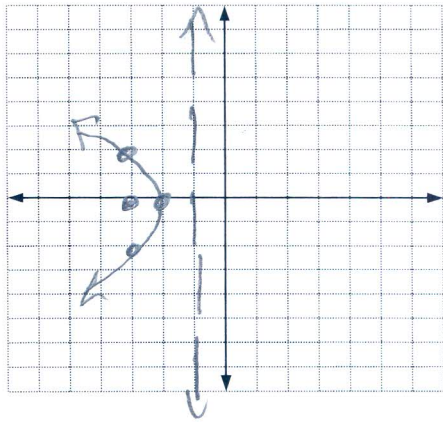
$$\text{Vertex: } \underline{(-2, 0)}$$

$$\text{Focus: } \underline{(-3, 0)}$$

$$\text{Directrix: } \underline{x = -1}$$

$$\text{E of LR: } \underline{(-3, 2) (-3, -2)}$$

$$\begin{aligned} &\text{left} \\ &4p = -4 \\ &p = -1 \end{aligned}$$



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

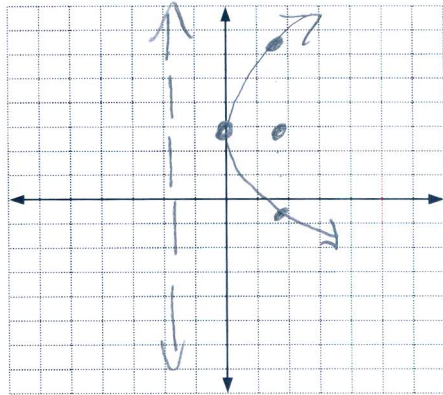
$$\text{Vertex: } \underline{(0, 3)}$$

$$\text{Focus: } \underline{(1.75, 3)}$$

$$\text{Directrix: } \underline{x = -1.75}$$

$$\text{E of LR: } \underline{(1.75, 6.5) (1.75, -0.5)}$$

$$\begin{aligned} &\text{right} \\ &4p = 7 \\ &p = 1.75 \end{aligned}$$



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

$$\text{Vertex: } \underline{(3, 5)}$$

$$\text{Focus: } \underline{(3, 6)}$$

$$\text{Directrix: } \underline{y = 4}$$

$$\text{E of LR: } \underline{(1, 6) (5, 6)}$$

$$\begin{aligned} &4(y-5) = (x-3)^2 \\ &(x-3)^2 = 4(y-5) \end{aligned}$$

$$\begin{aligned} &\text{up} \\ &4p = 4 \\ &p = 1 \end{aligned}$$

