

Creating Quadratic Functions

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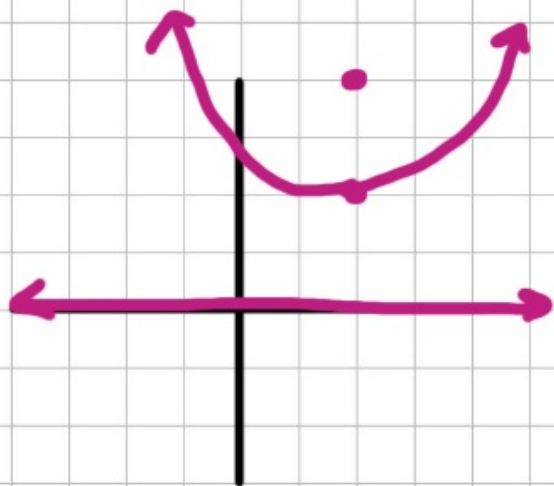


Vertex $(2, 2)$

Directrix $y = 0$

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$$\begin{matrix} (2, 2) & p=2 \\ h & k \end{matrix}$$

$$y = \frac{1}{4p}(x-h)^2 + k$$

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

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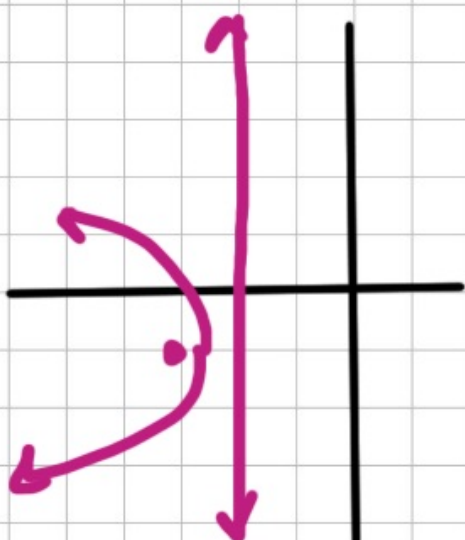


Focus $(-3, -1)$

Directrix $x = -2$

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$(\frac{5}{2}, -1)$ $p = -\frac{1}{2}$
 h k

$$x = \frac{1}{4p} (y - k)^2 + h$$

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

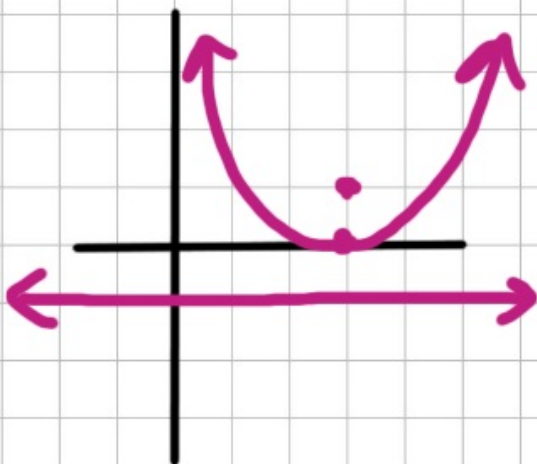
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Focus $(3, 1)$

Directrix $y = -1$

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$$\begin{matrix} (3, 0) \\ h \quad k \end{matrix} \quad p = 1$$

$$y = \frac{1}{4p} (x - h)^2 + k$$

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

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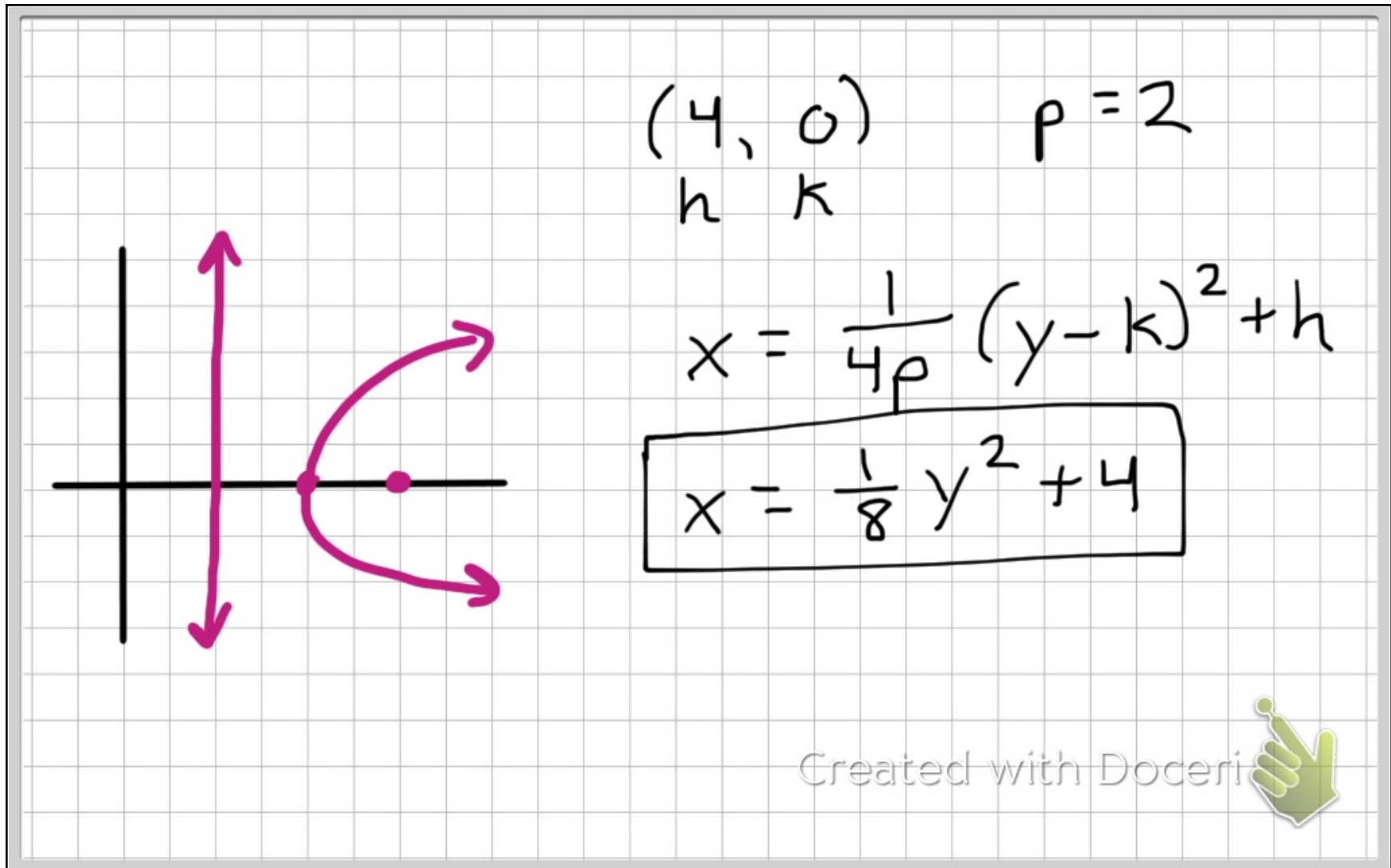


Directrix $x = 2$

Focus $(6, 0)$

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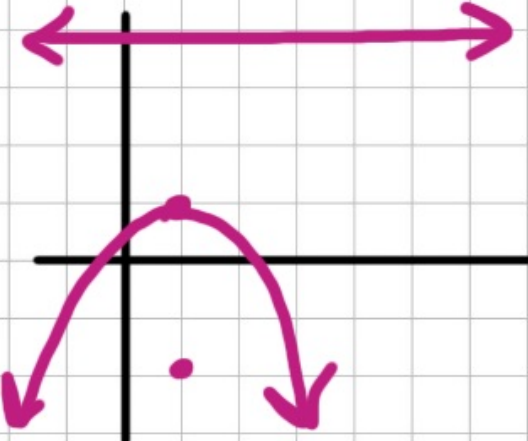




Focus $(1, -2)$
Directrix $y = 4$

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$(1, 1)$ $p = -3$
 h k

$$y = \frac{1}{4p} (x - h)^2 + k$$

$$y = -\frac{1}{12} (x - 1)^2 + 1$$

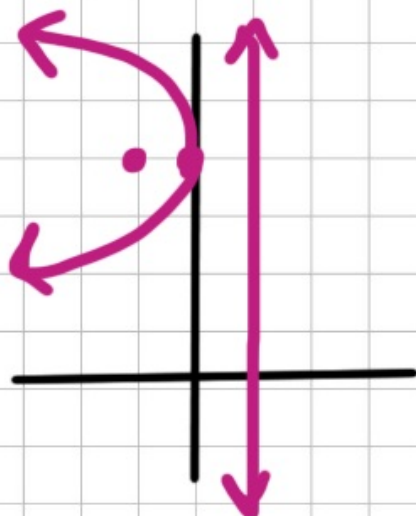
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Focus $(-1, 4)$

Directrix $x = 1$

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$$\begin{matrix} (0, 4) & p = -1 \\ h & k \end{matrix}$$

$$x = \frac{1}{4p} (y - k)^2 + h$$

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

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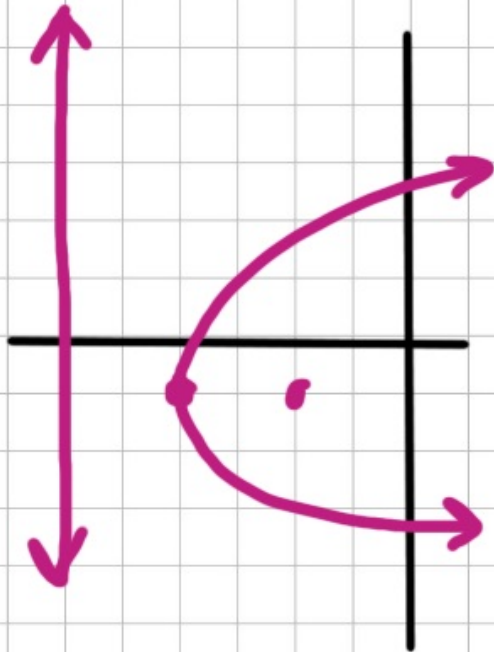


Focus $(-2, -1)$

Directrix $x = -6$

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$$\begin{matrix} (-4, -1) & p=2 \\ h & k \end{matrix}$$

$$x = \frac{1}{4p}(y-k)^2 + h$$

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

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