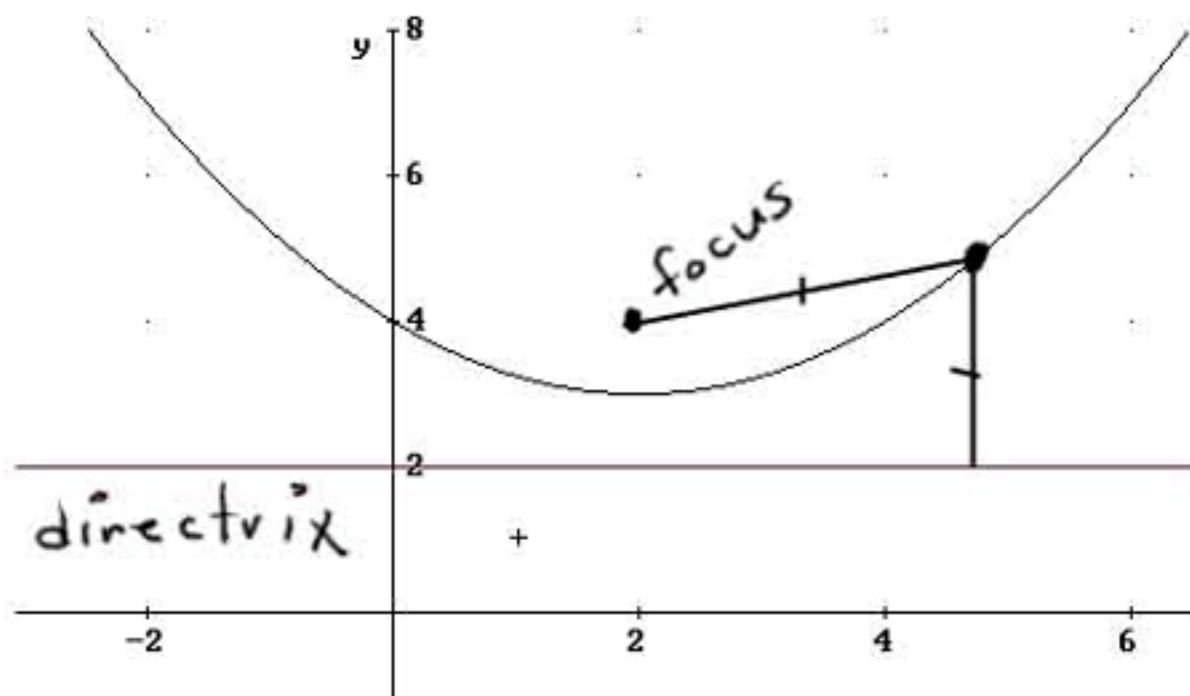


## Geometry Reminder:

A parabola is a set of all points in a plane equidistant from a fixed line (called the directrix) and from a fixed point not on the line in the plane (called the focus).



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

a is + opens up

wider

vertex  $(2, 1)$

axis of symmetry:  $x = 2$

focus  $(2, 1 + \frac{1}{4(\frac{1}{2})})$

$(2, 1 + \frac{1}{2})$

$(2, 1\frac{1}{2})$

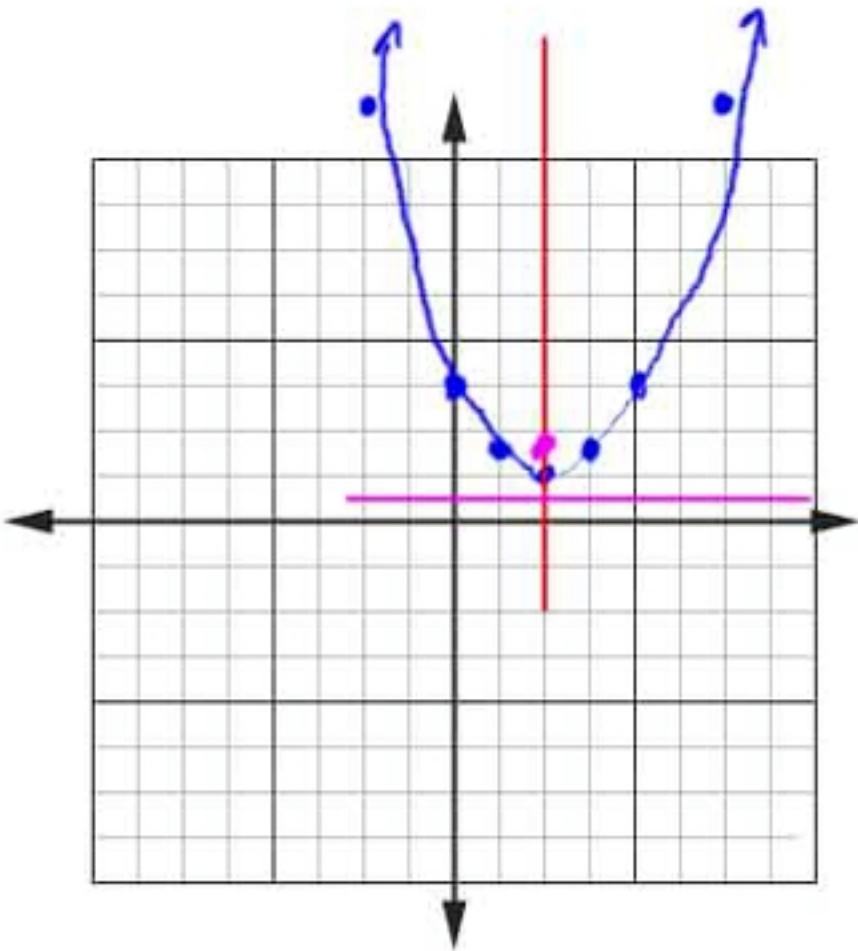
directrix:  $y = 1 - \frac{1}{4(\frac{1}{2})}$

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

$$y = \frac{1}{2}$$

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

x	y
1	$1\frac{1}{2}$
0	3
-2	9



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

left vertex  $(-2, -3)$

wide axis of symmetry:  $y = -3$

$$\text{focus } (-2 + \frac{1}{4(-\frac{1}{4})}, -3)$$

$$(-2 + \frac{1}{-1}, -3)$$

$$(-3, -3)$$

$$\text{directrix: } x = -2 - \frac{1}{4(-\frac{1}{4})}$$

$$x = -2 - -1$$

$$x = -2 + 1$$

$$x = -1$$

x	y
$-2\frac{1}{4}$	-2
-3	-1
	0
-6	1

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

