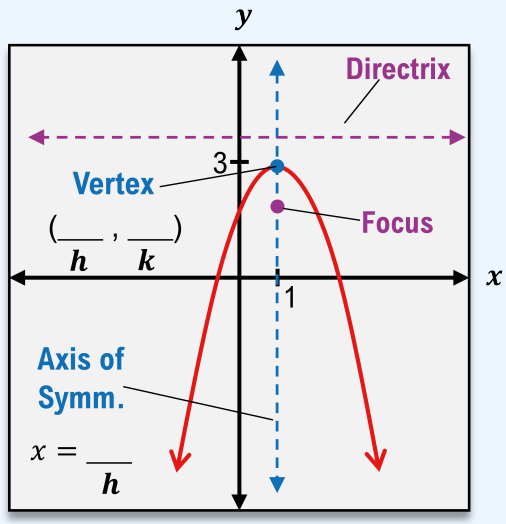
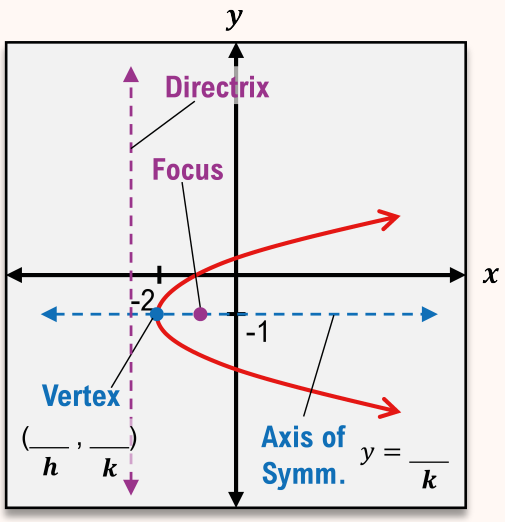
TOPIC: PARABOLAS

Parabolas in Standard Form

◆ Recall: A quadratic $y = a(x-h)^2 + k$ is a parabola that opens __ or __ w/ vertex (h, k) & axis of symm. $y = k$.

Recall **Vertical Parabolas**	New **Horizontal Parabolas**
$y = a(x-h)^2 + k$	$= a(\quad - \quad)^2 +$
a is **pos**: parabola opens **[↑ | ↓]** a is **neg**: parabola opens **[↑ | ↓]**	a is **pos**: parabola opens **[→ | ←]** a is **neg**: parabola opens **[→ | ←]**
$y = -\frac{1}{2}(x-1)^2 + 3$	$x = (y+1)^2 - 2$
	

◆ As a conic section, a parabola is all points that are _____ distance from a fixed line (**directrix**) & point (**focus**).

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PRACTICE Find the vertex and axis of symmetry and determine the direction that the parabola opens.

(A)

$x = 6y^2$

Parabola opens **[↑ | ↓ | → | ←]**

Vertex: (_____, _____)

Axis of symmetry: _____

(B)

$y = (x + 4)^2 - 9$

Parabola opens **[↑ | ↓ | → | ←]**

Vertex: (_____, _____)

Axis of symmetry: _____

(C)

$x = -2y^2 + 6$

Parabola opens **[↑ | ↓ | → | ←]**

Vertex: (_____, _____)

Axis of symmetry: _____