

Vertex Form: $y = a(x-h)^2 + k$

Vertex	(h, k)
Axis of Symmetry	$x = h$
<i>a</i>	+a opens up
	-a opens down
	$ a > 1$ v.stretch
	$ a < 1$ v.compress
<i>h</i>	horizontal shift: + left / - right
<i>k</i>	vertical shift: + up / - down

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

Vertex: $(-5, 3)$

Axis of Symmetry: $x = -5$

Compress/Stretch: by $\frac{1}{2}$

Horizontal shift: $\leftarrow 5$

Vertical shift: $\uparrow 3$

x-intercepts: _____

y-intercept: _____

Domain: _____

Range: _____

Increasing: _____

Decreasing: _____

As $x \rightarrow +\infty$, $f(x) \rightarrow$ _____

As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

Use the graph to answer