

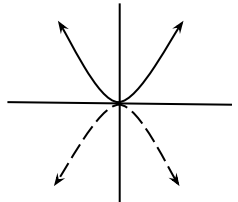
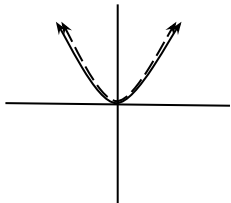
TRANSFORMATIONS

Inside: x-direction (horizontal)* (*x is always opposite)

Outside: y-direction (vertical)

Parent Function

$$y = x^2$$

	SHIFTS (+/-)	STRETCHES/COMP. (x)	REFLECTIONS (Neg)
Vertical (y-direction)	$y = x^2 + 2$ (up 2) $y = x^2 - 2$ (down 2)	$y = 2(x)^2$ (vert. stretch by 2) $y = \frac{1}{2}(x)^2$ (vert. comp by $\frac{1}{2}$)	$y = -x^2$  (vert. ref. over x-axis)
Horizontal* (x-direction)	$y = (x + 2)^2$ (left 2) $y = (x - 2)^2$ (right 2)	$y = (2x)^2$ (horiz. comp by $\frac{1}{2}$) $y = (\frac{1}{2}x)^2$ (horiz. stretch by 2)	$y = (-x)^2$  (horiz. ref. over y-axis)