Rules for Transformations of Graphs

Output	Transformation		Orientation/Type
$f(x)$	Original graph or parent graph.		
$f(x) + c$	Up c.		Vertical translation
$f(x) - c$	Down c.		Vertical translation
$f(x + c)$	Left c.		Horizontal translation
$f(x - c)$	Right c.		Horizontal translation
$-f(x)$	Reflects over the *x-axis*.		Vertical reflection
$f(-x)$	Reflects over the y-axis.		Horizontal reflection
$c\,f(x)$	If $c > 1$, then the graph is stretched.	* Vertical scaling, y changes, x does not change. Ex: If $c = 2$, then y is twice original.	Vertical stretch
	If $0 < c < 1$, then the graph is compressed.		Vertical compression
$f(cx)$	If $c > 1$, then the graph is compressed.	* Horizontal scaling, x changes, y does not change. Ex: if $c = 2$ then x is $\frac{1}{2}$ as much.	Horizontal compression
	If $0 < c < 1$, then the graph is stretched.		Horizontal stretch
$|f(x)|$	Reflection of the *negative* y-values over the *x-axis* to become positive while all of the *positive y's* stay the same.		Vertical
$f|x|$	Reflection of the *positive* x-values over the *y-axis* to replace the *negative* x-values creating a graph with *y-axis* symmetry.		Horizontal