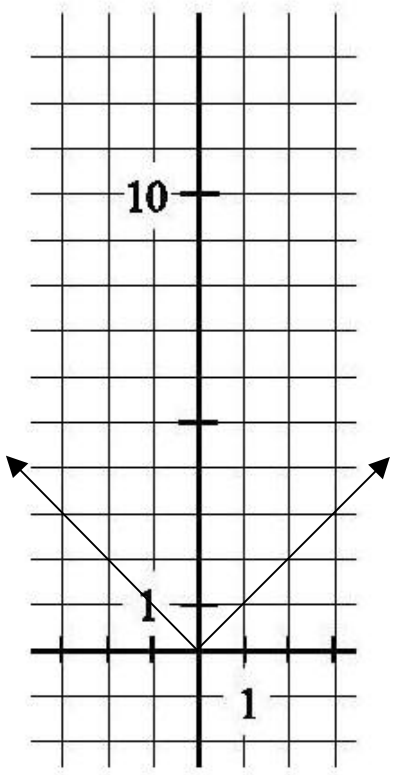
Transformations 2 NAME:

Use your knowledge about transformations to answer the following questions.

1. Notice $y = |x|$ is pictured below. Complete the table and draw in $y = 2|x|$.

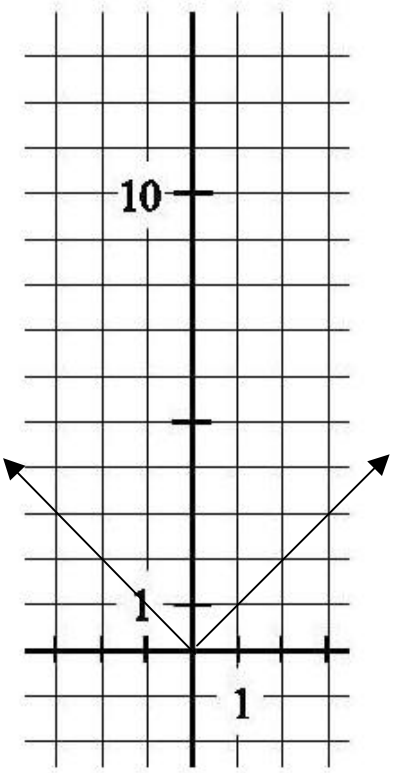
x	-3	-2	-1	0	1	2	3
$y = 2\|x\|$							



Recall this is called a **vertical stretch by a factor of 2.**

2. Notice again $y = |x|$ is pictured below. Complete the table and draw in $y = |x| + 5$.

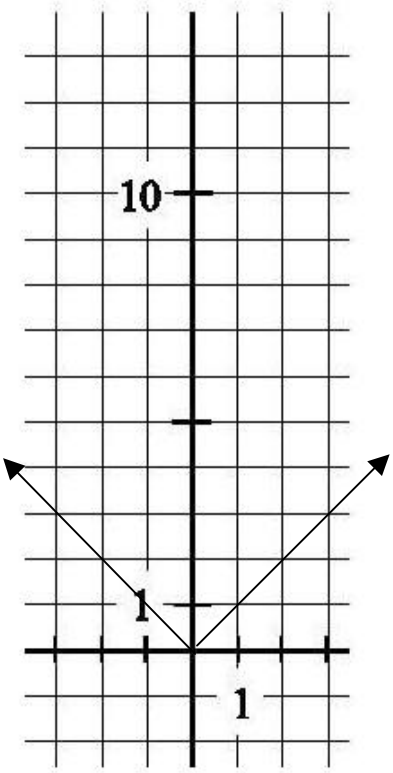
x	-3	-2	-1	0	1	2	3
$y = \|x\| + 5$							



Recall this is called a **vertical shift up 5 units**.

3. Notice again $y = |x|$ is pictured below. Complete the table and draw in $y = |x-1|$.

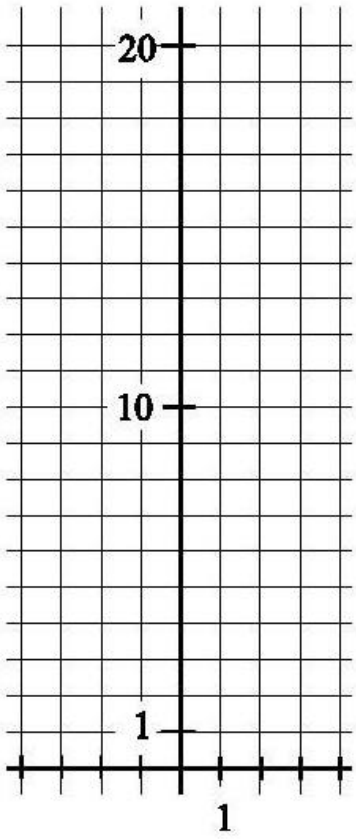
x	-3	-2	-1	0	1	2	3
$y = \|x-1\|$							



Recall this is called a **horizontal shift to the right 1 unit.**

4. We have seen individual transformations of functions. Let's look at a function whose graph is formed by more than one transformation. Consider $f(x) = x^2$ and $g(x) = 2x^2 + 3$. Complete the table and graph both functions on the plane below.

x	-4	-3	-2	-1	0	1	2	3	4
$f(x) = x^2$									
$g(x) = 2x^2 + 3$									



What are the **two** transformations needed to turn the graph of $f(x) = x^2$ into the graph of $g(x) = 2x^2 + 3$? (Do you see them in your graph?)