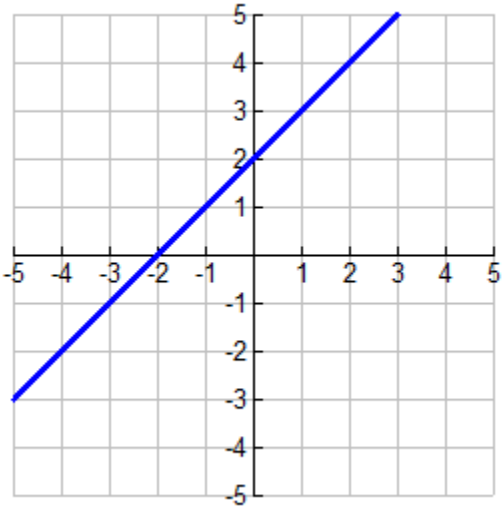
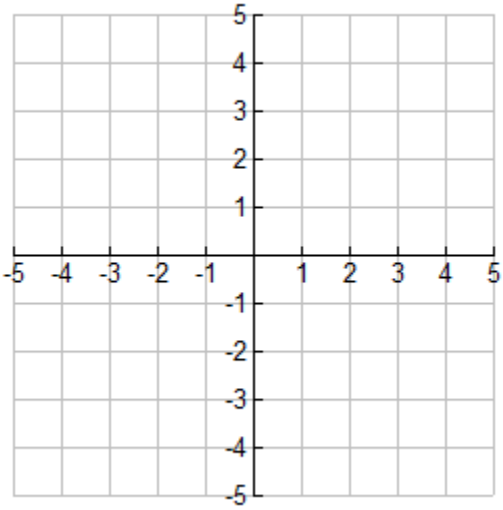
Algebra 1 Name _____ Date _____

Unit 1 - Introduction to Graphing – NOTES H

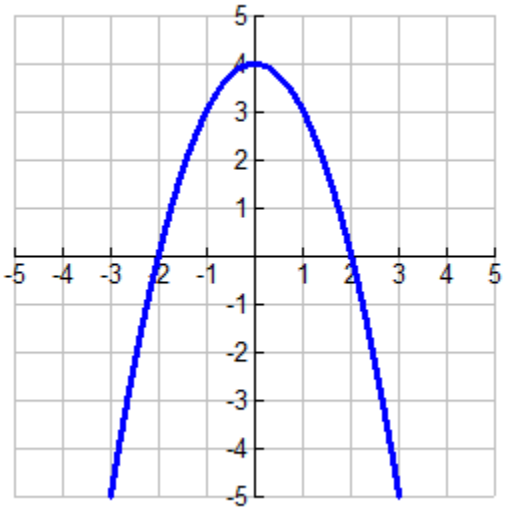
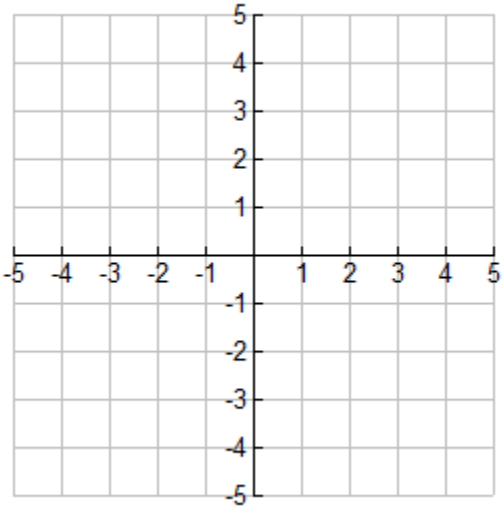
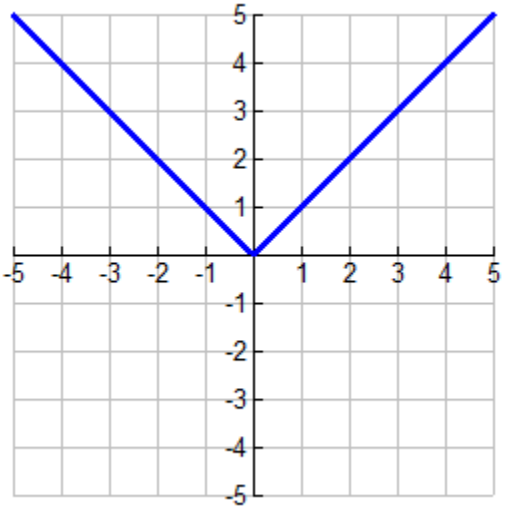
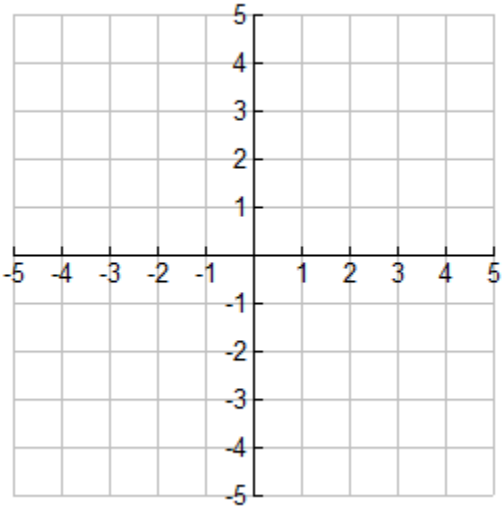
Part 1: ALGEBRAICALLY - Given an original function and a transformation, write the equation of the new function.

	Function	Put X in PARENTHESIS	Transformation	Change in INPUT (X) and/or OUTPUT (Y)	New Function
1.	f(x) = 7x	f(x) = 7(x)	Up 4		
2.	$y = 2x^2$	$y = 2(x)^2$	Down 6		
3.	y = |x|	y = |(x)|	Left 3		
4.	f(x) = -4x	f(x) = -4(x)	Right 5		
5.	$y = -6x^2$	$y = -6(x)^2$	Right 2 and Down 3		
6.	f(x) = |x-3|	f(x) = |(x-3)|	Left 7 and Up 1		

Part 2: GRAPHICALLY - Given the graph of a function and a transformation, produce the graph of the transformation.

	Function	Transformation	New Function
1.	 Function: y = x + 2	Left 3	 Write the new function: y = _____

.

	Function	Transformation	New Function
2.	 Function: $y = -x^2 + 4$	Right 2	 Write the new function: y = _____
3.	 Function: $y = \lvert x \rvert$	Right 1 Down 2	 Write the new function: y = _____

Part 3: NUMERICALLY - Given the table of values for a function and a transformation, fill in the new table of values of the transformation.

	Table of Values	Transformation	New Table of Values
1.	x | f(x) -2 | 4 -1 | 1 0 | 0 1 | 2 2 | 4 Function: y = f(x)	Right 4 Down 2	x | f(x) 2 | | -1 4 | | 0 | 2 Write the new function: y = _____

<table>
<tr>
<td>2.</td>
<td>
<table>
<tr><td>x</td><td>f(x)</td></tr>
<tr><td>-4</td><td>4</td></tr>
<tr><td>-2</td><td>2</td></tr>
<tr><td>0</td><td>0</td></tr>
<tr><td>2</td><td>2</td></tr>
<tr><td>4</td><td>4</td></tr>
</table>
Function: y = f(x)
</td>
<td>Up 3</td>
<td>
<table>
<tr><td>x</td><td>f(x)</td></tr>
<tr><td>-4</td><td></td></tr>
<tr><td></td><td>5</td></tr>
<tr><td>0</td><td></td></tr>
<tr><td>2</td><td></td></tr>
<tr><td></td><td>7</td></tr>
</table>
Write the new function: y = _____
</td>
</tr>
<tr>
<td>3.</td>
<td>
<table>
<tr><td>x</td><td>f(x)</td></tr>
<tr><td>0</td><td>0</td></tr>
<tr><td>1</td><td>1</td></tr>
<tr><td>4</td><td>2</td></tr>
<tr><td>9</td><td>3</td></tr>
<tr><td>16</td><td>4</td></tr>
</table>
Function: y = f(x)
</td>
<td>Left 2

Down 1</td>
<td>
<table>
<tr><td>x</td><td>f(x)</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
</table>
Write the new function: y = _____
</td>
</tr>
</table>

Subtract from x-coordinate  Going Left	Subtract from y-coordinate  Going Down
Add to x-coordinate  Going Right	Add to y-coordinate  Going Up