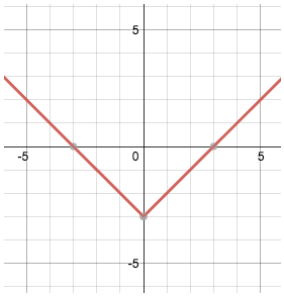
Name: _____ Date: _____ **Unit 3 Class Work**

Graphing Absolute Value Functions Class Work

Objective: You will be able to graph absolute value functions.

★ **Example**:
Absolute value functions are always in the shape of a "V," as pictured.



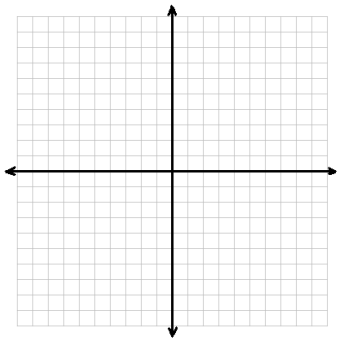
Each graph has a vertex and a slope for each of its sides.

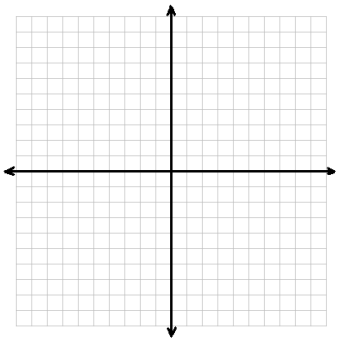
The general form of an absolute value equation is: $f(x) = A|Bx+C|+D$

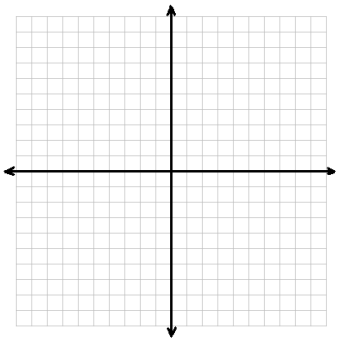
★ **Discover!** *First, we are going to graph absolute value function using a table of values. You will be able to discover a simpler way to identify the vertex for future problems!* ☺

1. Complete the table of values to graph each function.
For each, record the vertex, as well as the values of B, C, and D.

$f(x) = \|x + 2\| - 5$		$f(x) = \|2x + 6\| + 4$		$f(x) = -\|½x + 1\| + 2$	
x	y	x	y	x	y
-3		-4		-3	
-2		-3		-2	
0		0		0	
2		3		2	







B = _____ C = _____ D = ____

Vertex:

B = ____ C = _____ D = ____

Vertex:

B = _____ C = _____ D = ____

Vertex:

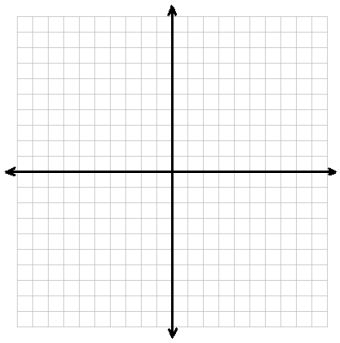
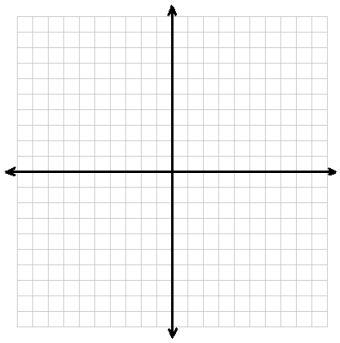
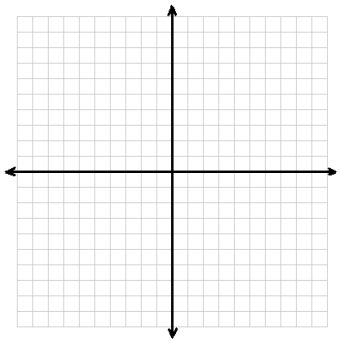
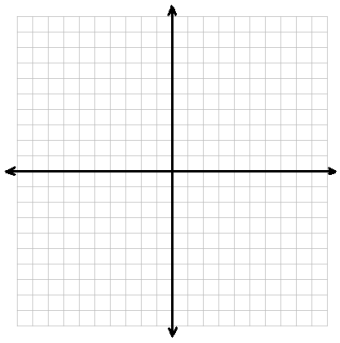
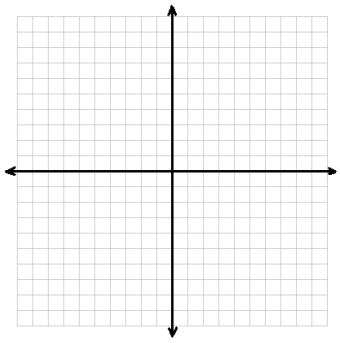
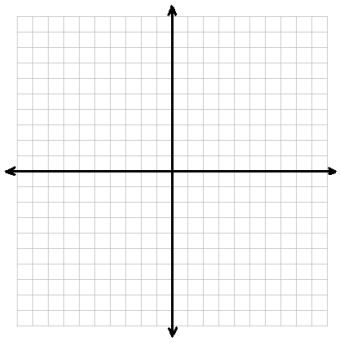
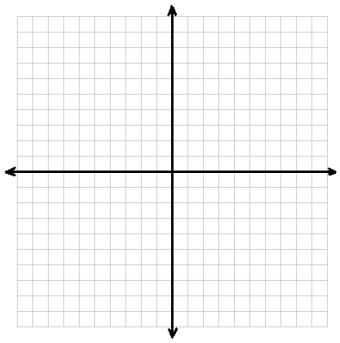
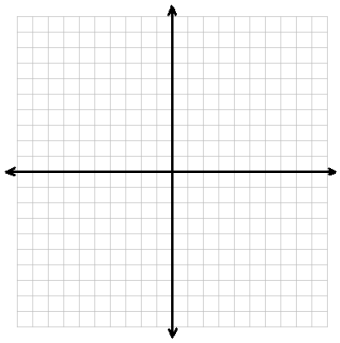
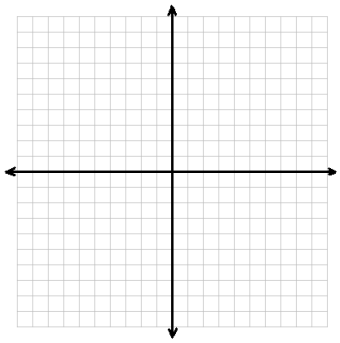
★ Do you notice any relationship between the values of B, C, D, and the vertex??

Practice: *Graph each absolute value function.*

Suggested Method:

First identify and plot the vertex (-C/B, D).

Then choose a value for x, evaluate the function, and plot the point and its "mirror image."

f(x) = -|x| - 3 	f(x) = |¼x + 1| + 2 	f(x) = |2x - 4| - 1 
f(x) = |-x + 3| - 5 	f(x) = |5x - 10| + 4 	f(x) = -|x - 3| 
f(x) = |.2x + 1| - 1 	f(x) = -|3x| - 7 	f(x) = |¾x - 4| + 2 

Write down any reminder for graphing absolute value functions.