

\* look for patterns \*

## WS 4.6 Graphing Absolute Value Functions

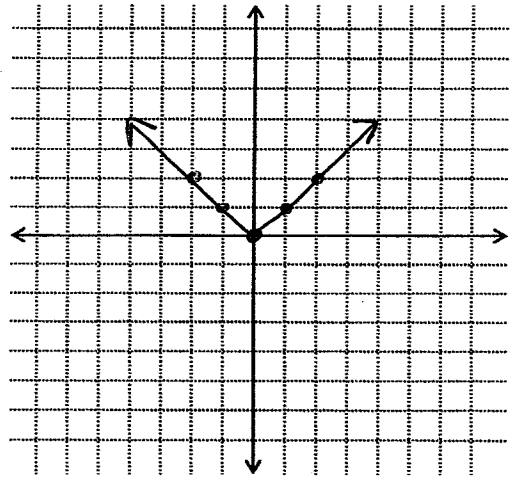
1.  $f(x) = |x|$

Make a table of values:

x	-2	-1	0	1	2
y	2	1	0	1	2

What is the shape of the graph? "V"Vertex: (0,0)

What are some other characteristics of the graph?

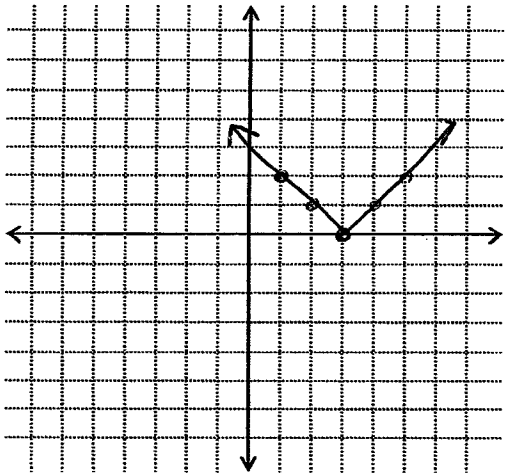
Symmetric

Use the graphing calculator to graph the following absolute value functions and fill in all missing information. Be sure to plot the vertex and at least 4 other points.

Horizontal Shift

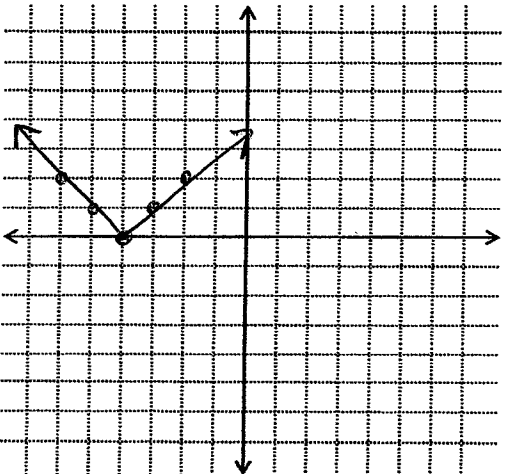
2.  $f(x) = |x-3|$

x	1	2	3	4	5
y	2	1	0	1	2

Vertex: (3,0)D:  $(-\infty, \infty)$  R:  $[0, \infty)$ 

3.  $f(x) = |x+4|$

x	-6	-5	-4	-3	-2
y	2	1	0	1	2

Vertex: (-4,0)D:  $(-\infty, \infty)$  R:  $[0, \infty)$ 

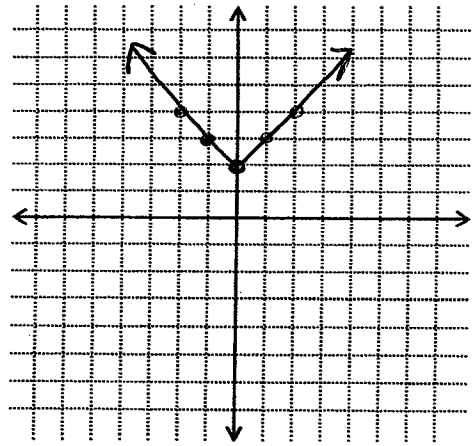
# Vertical Shift

4.  $f(x) = |x| + 2$

x	-2	-1	0	1	2
y	4	3	2	3	4

Vertex: (0, 2)

D:  $(-\infty, \infty)$  R:  $[2, \infty)$

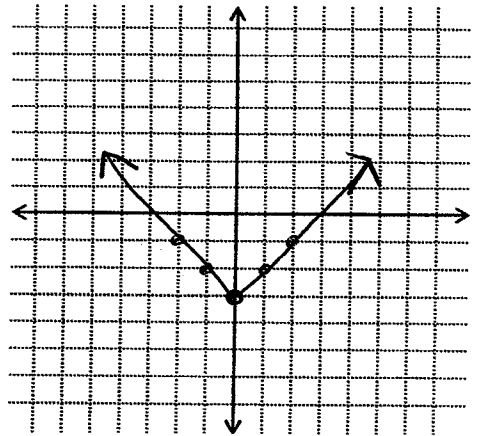


5.  $f(x) = |x| - 3$

x	-2	-1	0	1	2
y	-1	-2	-3	-2	-1

Vertex: (0, -3)

D:  $(-\infty, \infty)$  R:  $[-3, \infty)$



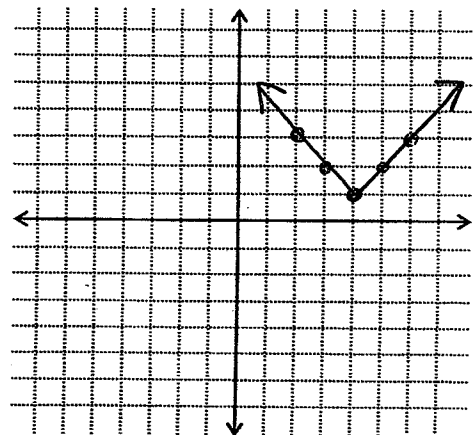
# Vertical & Horizontal Combined

6.  $f(x) = |x - 4| + 1$

x	2	3	4	5	6
y	3	2	1	2	3

Vertex: (4, 1)

D:  $(-\infty, \infty)$  R:  $[1, \infty)$

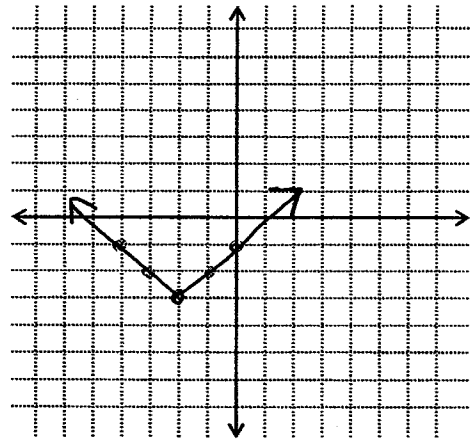


7.  $f(x) = |x+2| - 3$

x	-4	-3	-2	-1	0
y	-1	-2	-3	-2	-1

Vertex:  $(-2, -3)$

D:  $(-\infty, \infty)$  R:  $[-3, 0)$



Given the general equation:  $f(x) = |x-h| + k$ , describe how each of the variables affects the graph of the function.

h: moves the vertex left and right

k: moves the vertex up and down

Pretend you have to teach this to a friend that wasn't in class today. Write a paragraph describing how you would teach this to your friend.

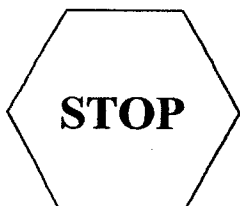
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**When you have finished the notes please ask Ms. Skerik to check your packet.**