WARM UP - Also get out your HW WB pg 10.

1) Graph the following function on your graphing calculator.
State the coordinates of the vertex. (3 , 5)
Then state the domain and range, using interval notation.

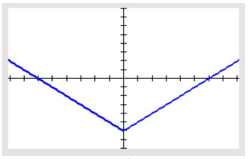
D: $(-\infty, \infty)$
R: $(-\infty, 5]$

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

2) Find the slope of the line containing the points:
(-3, 8) and (-3, -15) $\frac{-23}{0}$ = und

$\frac{8}{0}$ $\frac{D}{0}$ OK NO

3) Write the equation of the graph.



$y = |x| + 6$ $\frac{0}{-23} = 0$

x= y=

4) Line L has an undefined slope. Line M is perpendicular to line L. Which of the following could be the equation of line M?

A) x = y (B) y = 12 C) x = -8 D) xy = 9

Aug 25-1:09 PM

Get out your homework. Compare your graphs with someone sitting next to you.

Aug 26-9:32 AM

2.6: Family of Functions

Objective:
To graph an absolute value function by performing transformations (vertical and horizontal shifts and reflections) on the parent graph

Jul 23-2:51 PM

Vocabulary

Vocubulary to recall from Geometry.

Transformations	
Reflection	Translation

right or left up or down

flipping over some line

rotations/stretches

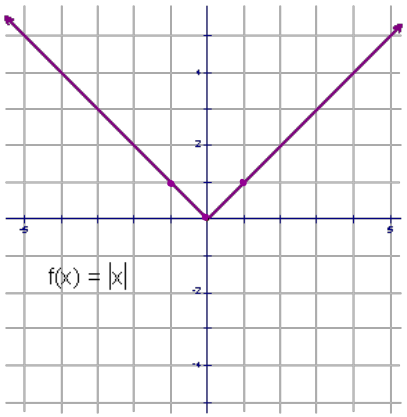
Jul 23-2:51 PM

Absolute Value Function

The absolute value function is defined by $f(x) = |x|$.
This is the absolute value **parent function**.

x	y
0	0
1	1
-1	1

reference points



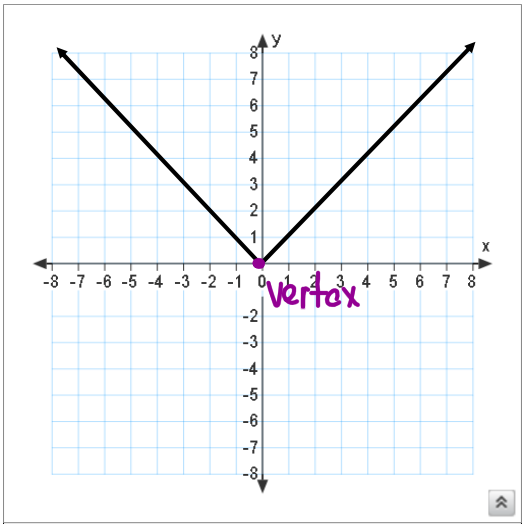
Jul 23-2:51 PM

Parent Function: y = |x|

V-shape

It is symmetric about the y-axis

The **vertex** is the minimum point on the graph



Jul 23-2:51 PM

Observation

How to perform transformations on the absolute value function.

What did you observe on your calculator?

$y = |x|$ y-int (0,0)

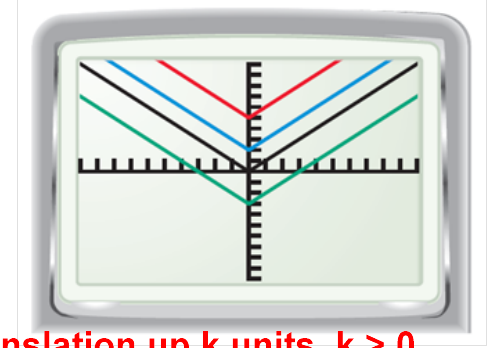
$y = |x| + 2$ y-int (0,2) up 2

$y = |x| - 5$ y-int (0,-5) down 5

Jul 23-2:51 PM

Observation

Describe how the family of graphs $y = |x| \pm k$ is related to $y = |x|$.



Vertical shift **y = |x| + k Translation up k units, k > 0**

y = |x| - k Translation down k units, k > 0

Jul 23-2:51 PM

Observation

Now,
what did you observe on your calculator.

y = |x| x-int (0,0)

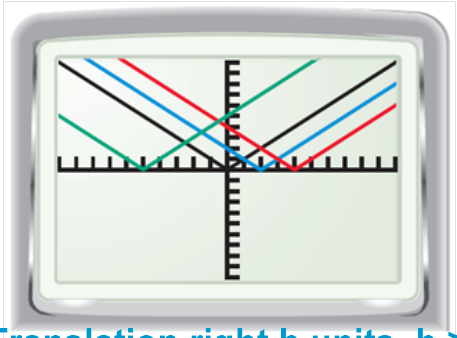
y = |x + 2| left 2 (-2,0)

y = |x - 5| right 5 (5,0)

Jul 23-2:51 PM

Observation

Describe how the family of graphs
$y = |x \pm h|$ is related to
$y = |x|$.



Horizontal shift y = |x - h| Translation right h units, h > 0

y = |x + h| Translation left h units, h > 0

Jul 23-2:51 PM

Exercise 1

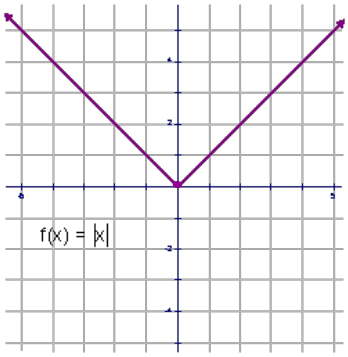
What happened to the parent function when you graphed

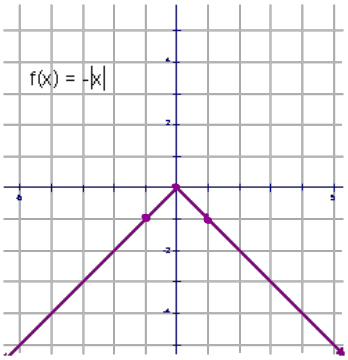
$y = -|x|$?

reflection over the x-axis

Jul 23-2:51 PM

Reflection over the x-axis





Jul 23-2:51 PM

Multiple Transformations

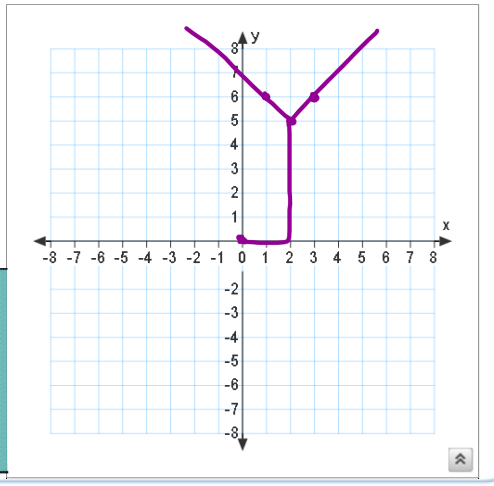
Without a graphing calculator, describe and graph the following functions.

1) $y = |x - 2| + 5$

right 2 up 5

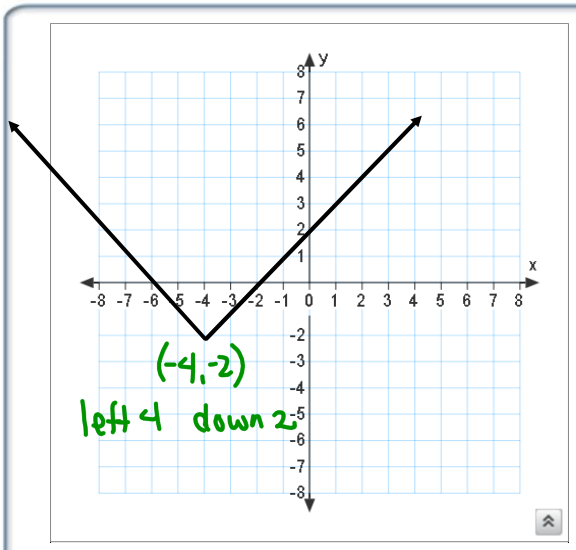
V (2, 5)

Graph



Jul 23-2:51 PM

Write the equation of the graph.



$y = |x + 4| - 2$

opposite sign

same sign

Jul 23-2:51 PM

Get a white board, marker and eraser to reflect on your progress.

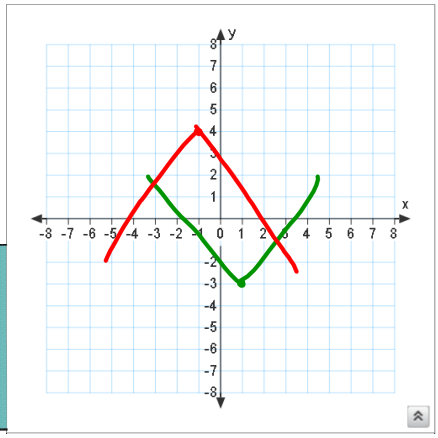
Graph on your white board showing at least 3 points.

1) $y = |x - 1| - 3$ V (1, -3)

2) $f(x) = -|x + 1| + 4$ V (-1, 4)

3) $y = |x + 1| - 6$

Graph



Aug 30-3:03 PM

Write the equation of y = | x | after the following translations.

4) shifted 2 units right and 3 units up

$y = |x - 2| + 3$

5) a vertex at (-3, -7), turning down

$y = -|x + 3| - 7$

Aug 22-4:15 PM

6) The graph of which equation will NOT have a y-intercept of 5?

A. $y = |x| + 5$

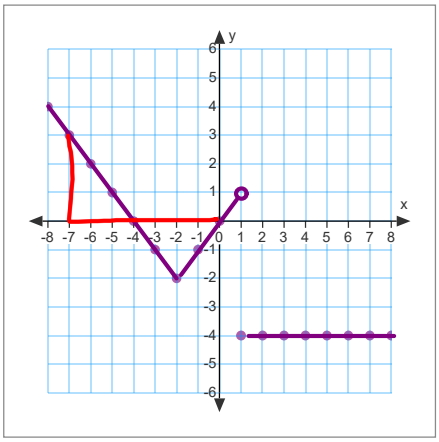
B. $y = |x - 5|$

C. $y = |x - 5| + 5$

D. $y = |x + 5|$

Aug 22-4:18 PM

7) Given the piecewise function, what is the value of:



f(-7) = 3

f(-3) = -1

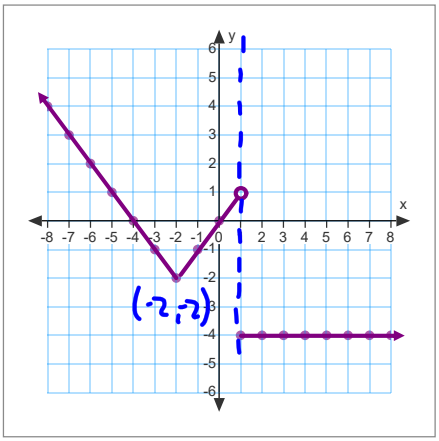
f(1) = -4

f(5) = -4

Aug 22-4:28 PM

8) Write the equations for this piecewise function, using absolute value.

$$f(x)=\begin{cases} |x+2|-2 & ; \ x<1 \\ -4 & ; \ x\geq 1 \end{cases}$$



Aug 22-4:28 PM

GO COUGARS!

HW 2.5 Part 1

Google Matching + Graphing

Located in the google classroom

Aug 29-11:17 AM