Bell Work (Prepare for Quiz – Next Class!):

1.) Find the slope, and the x and y-intercepts:

$2y + 8 = 4x$

2.) Write the equation of the line through (2, -5) and (-1, 3)

ALGEBRA 3

Day 19

From Last Time…

New Material (Section 2.5)

Page 96 #1, 7, 9, 13, 15-17, 27

New Material (Section 2.6)

Page 103 #5, 6, 13, 19-21, 55

Chapter 2 Section 7
Absolute Value Functions and Graphs

Objective: To graph absolute value functions

Chapter 2 Section 6 Review Remember…

- **Parent Graph** – graph simplest form in a set of functions that form a “family”

- **Transformation**—each function in the “family” that is related to the parent (like the kid to the parent)

Types of Transformations

- $f(x)\ is\ the\ parent\ graph \qquad (the\ original)$
- $f(x \pm h) is\ a\ horizontal\ shift \quad (move\ left\ and\ right)$
- $f(x) \pm k\ is\ a\ vertical\ shift \qquad (move\ up\ and\ down)$

- When you reflect a graph over the x-axis the y-values change signs and the x-values stay the same
  $f(x) \rightarrow\ -f(x)$

2.7 Transformation of Absolute Value

Parent Graph:

$f(x) = |x|$

Transformation of Parent:

$f(x) = a|x - h| + k$

What the heck is a, h and k?!

$$f(x) = a|x - h| + k$$

- The graph is V-shaped
- Vertex: (h, k) (think opposite value for h… like before)
- Line of Symmetry: x = h (Symmetric about line of symmetry)
- a = SLOPE of graph RIGHT of the line of symmetry
- Opens up if a > 0 and down if a < 0

- h shifts left and right, k shifts up and down

Example (Using Graphing Calculator): Describe the transformation.

Parent Graph $f(x) = |x|$

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

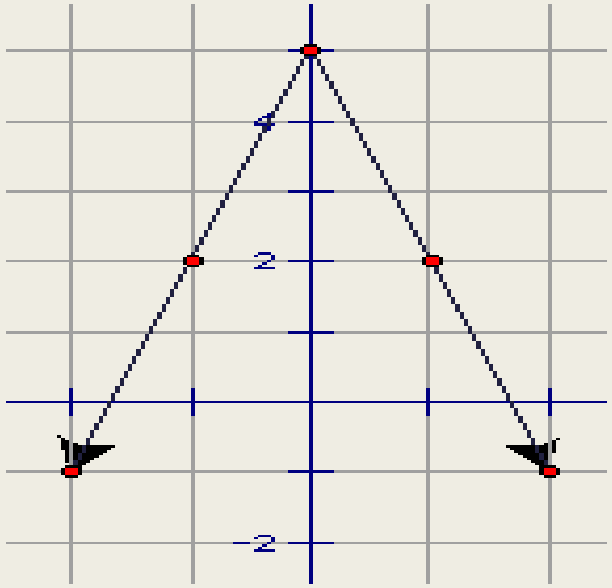
2.) $g(x) = |x| - 3$

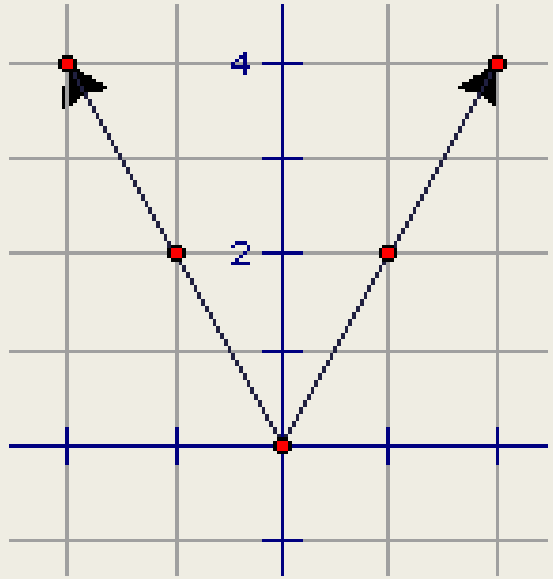
3.) $h(x) = |x - 4| + 1$

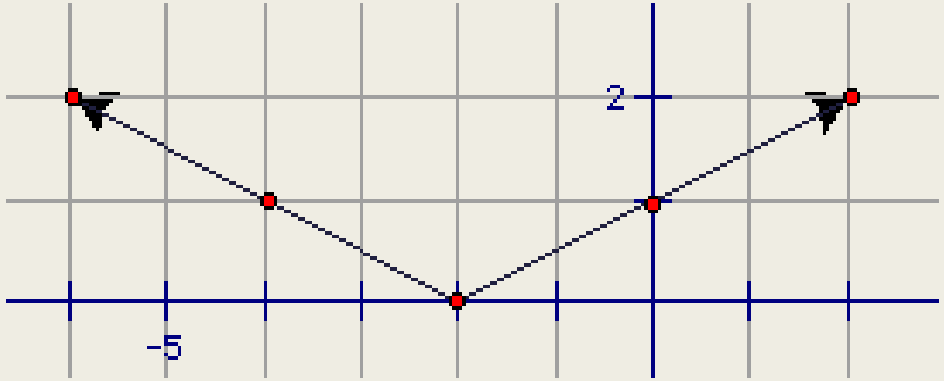
4.) $f(x) = \frac{1}{3}|x + 5| - 4$

5.) $f(x) = -4|x - 3| + 5$

Write the equation of the graphs below…







For Next Time…

New Material

Page 110 #9, 11, 15, 25, 29, 34

Mixed Review

Page 113 #61, 63, 64