The purpose of this computer lab visit is for you to learn how to graph functions without the use of a calculator. To help ease this process we are going to use a pretty interesting and EASY TO USE graphing program called DESMOS. Follow the steps below to explore graphing.

1. Go to my website, ezmath123.weebly.com. Go to the Algebra 2 tab, Day 13.

2. When is your next test? (NOT pretest) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Go to Day 13 and click on the DESMOS graphing word.

4. Let’s start off easy. Look at the screen and familiarize yourself with where certain buttons are at the bottom. Do you see the absolute value button? How about the x squared key? Notice where the inequalities are as well. Now let’s actually type some functions in that have been giving the class problems. Type in the equations: A. y = 4 and B. y = -2 . Describe what you see.

5. Clear those equations out by hitting the “X” on the side. Now type in the equations: A. x= 7 and B. x = -6.5. Describe what you see below.

 One of the best things about this is that you can graph equations in standard form too. As a class, we struggled with graphing equations that looked like: 2x + 5y = 10. Put this equation in JUST LIKE THIS: 2x + 5y = 10. Now roll the cursor over the x and y intercepts and put your answer below.

 X intercept: Y intercept:

6. Ok let’s toughen up a bit. Clear those equations out. You should already know how to graph equations that are in the form of y=mx+b. Graph the equation y=-7x+8. Now let’s try to do a fraction. Graph the equation $=\frac{-4}{5}x+6$ . Find where the two lines intersect by sliding the cursor over them. Put your answer below.

7. Let’s do some absolute value equations. Absolute **V**alue linear equations will make V’s. Graph the basic absolute value equation $y=\left|x\right|$ and draw your graph below.

8. Now let’s see how adding, subtracting, and multiplying numbers to the equation can change the graph. Underneath the basic equation, graph each and describe what it did to the graph. After you graph each one, clear it out. You should only have 2 graphs at any one time, the original $y=\left|x\right|$ graph, and the transformed graph. **{Important Addend: YOU NEED TO KNOW HOW TO DO THESE GRAPHS WITHOUT A CALCULATOR OR COMPUTER PROGRAM….PAY ATTENTION AND CATCH THE PATTERN}**

 Graph What it did it do?

2nd graph: $y=\left|x\right|+3.4$

3rd graph: $y=\left|x\right|-6.1$

4th graph: $y=\left|x+3.5\right|$

5th graph: $y=\left|x-5\right|$

6th graph: $y=-\left|x\right|$

7th graph:$ y=\left|x+8\right|-4$

9. The point in the middle of the absolute value graph is called the VERTEX. You can find this easily by using the cursor. But you also need to know how to find the vertex without the use of a computer software program. Find the vertex (it is a point….your answer will have 2 numbers) for the following graphs: $y=\left|x+5\right|-7$ and $ y=-\left|x-2\right|+3.7$

10. Ok, onto INEQUALITIES. Clear all of your graphs. Watch what happens when we start graphing the inequalities. Type in

 $ y<6x-3$ and (clear the first one out) $ y>\left|x+8\right|-4$. Draw your graphs below.

11. Now let’s do the big dog: the Piecewise functions. These graphs, as you may remember, are all pieces of other graphs. We are going to graph $f\left(x\right)=\left\{\begin{array}{c}-2x+5, \&x<0\\2, \&x\geq 0\end{array}\right.$. First off, clear all graphs. YOU HAVE TO USE BRACES.

 Go to the first function and type in : y = -2x+5 {x 0}

 Go to the second function and type in: y = 2 {x > 0}

 Draw what you see here then turn your paper into Mr. Hopkins