Investigating functions 3

NAME:

This worksheet will help us practice the basic idea of a function and function notation. We will also explore domain.

1. Neither relationship shown below is a function. For each, give an x value that has more than one y value. Also, tell what those y values are (approximately, if need be) and show the points on the graph (for part a).



2. For each function, find the desired value(s). Estimates will be accepted for part a. Pay attention to the scale given for the graph. Please simplify part b.



3. We will work on understanding domain and range. Remember domain can be thought of as the x values that you can put into the function and that will yield acceptable y values. Range can be thought of as the y values you can possibly get out.

a.) Consider the function  $y = \sqrt{3x+4}$ . Recall you cannot take the square root of a negative number (in the real number system). All x values that would result in the square root of a negative number would be excluded from the domain. Give one such x value that would be excluded from the domain.

b.) Graph this function on your grapher. Use the window [-2, 4] x [-1, 5] to match the graph paper given below; this will make it easier to copy to paper. (Note: Make sure your graph looks like a curve and not a straight line. Although the calculator may not show it, the graph should hit the x-axis at  $-\frac{4}{3}$ . Please make that obvious on your graph.)



c.) Looking at the graph, what values of x are associated with the graph? In other words, what values of x will work in the function  $y = \sqrt{3x+4}$ ? This is the domain. Use interval notation.

d.) Looking at the graph, what values of y are associated with the graph? In other words, what values could we get out for y? This is the range. Use interval notation.