Now that we are comfortable with constructing tables, using relative and absolute cell references and using formulas in Excel we can put these all together and turn Excel into a graphing calculator. Again, the video will be very helpful with this topic, but I want you to have a written overview to refer to.
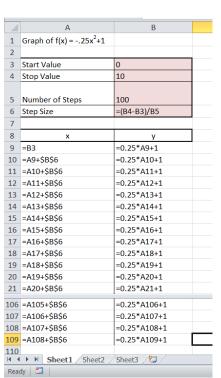
The graphs we are going to produce in this section will be interactive, we will be able to adjust the domain of our function to "zoom in" and "zoom out" as needed. We will need a table of parameters that will control the window of our graph. It should be located in the upper left corner of the spread sheet so the values can be easily adjusted as needed.

Graphing

Start Value	
Stop Value	
Number of Steps	
Step size	

Start, Stop and Number of steps are parameters, and we will adjust them as needed. Pick convenient values for Start and Stop (I often use 1 and 10 or 1 and 100). Pick a nice number, such as 100, to be the Number of. The Number of Steps **must** match the number of rows in our table.

The Step Size will be a formula referring to the start, stop and number of steps cells

$$\text{Step Size} = \frac{(stop - start)}{number\,of\,steps}$$

The parenthesis are required in the formula!

Below this table of parameters we will locate the table of values for our graph. Use Headers and Borders for the table, make it clear and easy to locate key information. In general:

- first x = start cell
- first y = formula using first x as a **relative** address
- second x = start cell + step size cell as an **absolute** address
- fill down the **second x** and **first y** to complete table.

Insert Scatter Plot to graph

Edit to make a workable, readable graph:

- Adjust the Start and Stop Values as needed
- To rescale a chart axis, right click on axis, select format axis
- To reformat a line, right click on line, select format data series, adjust options as needed.
- To change Series 1 to meaningful words, Right click in chart, select data, edit, new name

	A	B
1	Graph of f(x) = -.25x^2+1	
2		
3	Start Value	0
4	Stop Value	10
5	Number of Steps	100
6	Step Size	=(B4-B3)/B5
7		
8	x	y
9	=B3	=0.25*A9+1
10	=A9+$B$6	=0.25*A10+1
11	=A10+$B$6	=0.25*A11+1
12	=A11+$B$6	=0.25*A12+1
13	=A12+$B$6	=0.25*A13+1
14	=A13+$B$6	=0.25*A14+1
15	=A14+$B$6	=0.25*A15+1
16	=A15+$B$6	=0.25*A16+1
17	=A16+$B$6	=0.25*A17+1
18	=A17+$B$6	=0.25*A18+1
19	=A18+$B$6	=0.25*A19+1
20	=A19+$B$6	=0.25*A20+1
21	=A20+$B$6	=0.25*A21+1
106	=A105+$B$6	=0.25*A106+1
107	=A106+$B$6	=0.25*A107+1
108	=A107+$B$6	=0.25*A108+1
109	=A108+$B$6	=0.25*A109+1
110		

Sheet1 / Sheet2 / Sheet3
Ready

To zoom in, decide what values of x you would like to zoom in between. These are your new start and stop values. Change those and your table and graph automatically update. By setting up the Start, stop as parameters the table (and graph) is dynamic and easy to modify.