Math For Business Applications Spreadsheet Project 2

NOTE: Directions and files for download assume you are working with Microsoft Excel™ because that software is what the university provides to all students, faculty and staff. However, I encourage you to consider using the alternative and "Open Source" spreadsheet software made by Apache called OpenOffice Calc. Getting all of these activities converted into both platforms is a goal of mine. Any assistance would be appreciated.

Goal for this activity: Learn more about graphing from an equation in two variables using a spreadsheet and included graphing capability, when the graph is a polynomial. Use that graph to answer some math questions about polynomials and "average rate of change" over an interval.

1. Create a table of X and Y. Choose X values to be integers from -4 to 8
2. The function you will graph is $y = x^3 - 6x^2 - 15x + 20$
3. **Use a calculation** in Excel to calculate the Y values using - ***and this is very important*** - **cell references** every time the value of "X" is involved. You will lose significant points if you type the numbers in by hand. Being able to use formulas and calculations in Excel is a critical skill. For example, in cell B2 we could type (without the " ") "=A2^3-6*A2^2-15*A2+20" ← note that "A2" replaces "x" in the formula
4. Once you have two columns of numbers, create a smooth graph (just like week 1)
5. Insert a text box and comment about the location of a minimum, maximum (these are the extrema), as well as where the function appears to be increasing or decreasing.
6. In cell B16, type the text "Average Rate of Change" and use the "word wrap" tool so that all of the words are displayed in the cell.
7. In cell B17, **use a calculation** to calculate the average rate of change of f(x) between x = -4 and x = 8 Remember that average rate of change over an interval is $\frac{\Delta y}{\Delta x} = (y_2 - y_1)/(x_2 - x_1)$. Parentheses will be necessary because of "order of operations" rules. Use ***cell references*** for the y's and x's.

How to use calculations in ExcelLinks to an external site.

Example of calculations in Excel using cell references:

	A	B	C	D	E
1	25		**Operation**	**Result**	**Formula**
2	5		Addition	30	=A1+A2
3			Subtraction	20	=A1-A2
4			Multiplication	125	=A1*A2
5			Division	5	=A1/A2
6			Percent	2.5	=A1*10%
7			Exponentiation	125	=A2^3
8			Square root	5	=SQRT(A1)
9			Cube root	2.92	=A1^(1/3)