

Name: _____

Period: _____

Using Excel to Create Recursive Patterns and Difference Tables

Goal: Become more familiar with the recursive capabilities of Excel.

An example of a difference table is shown for the function $f(x) = 2x^3 - 5x^2 + 3x - 6$. When creating your difference table, you will want to use the function commands provided by Excel.

Example: In order to obtain the input column, it is not necessary to enter in the individual number 0 to 23. Simply enter in the first value of zero in the beginning A2 cell, and in the following cell A3 type = A2+1. You can then click and drag this characteristic to all cells in column A. To obtain the values in column B, use A1 as the input instead of x for the function $f(x) = 2x^3 - 5x^2 + 3x - 6$.

For each column, you must ask yourself what cells are used to obtain the value. For instance, to obtain C2, you must take B3-B2.

Note: Every value in this table except Cell A2 was obtained by using formulas or comparisons between cells. No individual values were entered in.

	A	B	C	D	E
1	X (input)	F(x) Output	Δ	Δ^2	Δ^3
2	0	-6	1	4	12
3	1	-5	5	16	12
4	2	0	21	28	12
5	3	21	49	40	12
6	4	70	89	52	12
7	5	159	141	64	12
8	6	300	205	76	12
9	7	505	281	88	12
10	8	786	369	100	12
11	9	1155	469	112	12
12	10	1624	581	124	12
13	11	2205	705	136	12
14	12	2910	841	148	
15	13	3751	989		
16	14	4740			

Use the excel program to create a difference table for the 2 functions below. Create the table for inputs up to x =15 and print them to the LMC.

1. $f(x) = -1x^3 - 3x^2 + 4x - 5$

2. $2x^3 + 3x^2 - 2x + 4$

