

Name \_\_\_\_\_

Date \_\_\_\_\_

Advanced Algebra

Unit 5- Assignment #9 Finite Differences in a table

"I can determine if a relationship is quadratic, linear or cubic, by examining tables, and rates of change"

Method: use the finite differences method to tell if a table is a linear pattern, quadratic pattern, or cubic pattern.

We will then use regression to find an equation for the data. (Stat-Calc- #4,5,6 or 7 depending)

Use the finite differences method to analyze the tables to see if they are linear, quadratic, cubic.

1)

X values	Y vales
5	32
6	38
7	44
8	50
9	56
10	62
11	68

6  
6  
6  
6  
6

Degree  
Linear

Final Equation for #1  
 $y = 6x + 2$

2)

X values	Y values
5	382
6	657
7	1040
8	1549
9	2202
10	3017
11	4012

275 } 108 } cubic  
383 } 18  
509 } 126 } 18  
653 } 144 } 18  
815 } 162 } 18  
995 } 180 } 18

Degree  
Cubic

Final Equation for #2  
 $y = 3x^3 + 0x^2 + 2x - 3$

3)

X values	Y values
5	69
6	96
7	127
8	162
9	201
10	244
11	291

27 } 4  
 31 } 4  
 35 } 4  
 39 } 4  
 43 } 4

Degree  
 Quadratic

Final equation for #3  
 $y = 2x^2 + 5x - 6$

4)

X values	Y values
5	50.5
6	62
7	74.5
8	88
9	102.5
10	118
11	134.5

11.5 } 1  
 12.5 } 1  
 13.5 } 1  
 14.5 } 1  
 15.5 } 1

Degree  
 Quadratic

Final Equation for #4  
 $y = \frac{1}{2}x^2 + 6x + 8$

5)

X values	Y values
5	245
6	424
7	675
8	1010
9	1441
10	1980
11	2639

179 } 72 } 12  
 251 } 84 } 12  
 335 } 96 } 12  
 431 } 108 } 12  
 539 } 120 } 12

Degree  
 Cubic

Final Equation for #5  
 $y = 2x^3 + 0x^2 - 3x + 10$