

Name _____

Unit 3 Holt Resource
p. 29, Algebra 2
p.30, Algebra 2 with Analysis

Modeling Data With Polynomial Functions

Use finite differences to determine the degree of the polynomial function that fits the data and then use the regression feature on your calculator to find the polynomial function.

1.

x	1	2	3	4	5	6
f(x)	4	20	54	112	200	324

16
18
24
30
36
42
48
54
60
66
72

3rd

$$y = x^3 + 3x^2$$

2.

x	1	2	3	4	5	6
f(x)	8	16	26	38	52	68

8
2
2
2
2
2

2nd

$$y = x^2 + 5x + 2$$

3.

x	1	2	3	4	5	6
f(x)	73	34	13	-26	-95	-182

-39
18
-21
-18
-39
-50
-69
-87

4th

-36
24
24
12

$$y = x^4 - 16x^3 + 80x^2 - 182x + 190$$

4.

x	1	2	3	4	5	6
f(x)	48	44	32	6	-40	-112

-4
-8
-12
-14
-20
-26
-26
-72

3rd

$$y = -x^3 + 2x^2 - 3x + 50$$

5.

x	1	2	3	4	5	6
f(x)	18	0	32	174	510	1148

-18
50
32
60
110
84
142
194
24
336
108
302
658

4th

$$y = x^4 - 33x + 50$$

6.

x	1	2	3	4	5	6
f(x)	-98	-86	-52	16	130	302

12
22
34
24
68
12
114
46
172
58
12

3rd

$$y = 2x^3 + x^2 + x - 100$$