CCSS Algebra 1 Name_____

Homework U5 Block 5

1. Fill in the gaps of the table.

term	1st		2nd		3rd		4th		5th
sequence	5		11		21		35		53
1st differences									
2nd differences									

2. Find the next three terms in the sequence:

6th term _____ 7th term _____ 8th term_____

3. Fill in the gaps so that the sequence in the first row is quadratic.

term	1st		2nd		3rd		4th		5th
sequence									
1st differences									
2nd differences			3		3		3		3

4. Fill in the gaps so that the sequence is linear.

term	1st		2nd		3rd		4th		5th
sequence									
1st differences									
2nd differences									

Consider each table and decide whether it could represent a linear function. Explain your reasoning.

1.

x	y
1	-3
2	0
3	5
4	12

2.

x	y
1	10
2	14
3	18
4	22

These examples show some common errors in working with rates of change. Each problem contains an incorrect conclusion. Explain why each conclusion is incorrect, and provide mathematical evidence to support your answer.

a.

x	y	
-1	-5	
2	-3	2
4	-2	2
5	-1	2

Since the rate of change is constant, the data is linear.

b.

x	y	
0	1	
1	5	5/1 = 5
2	25	25/5 = 5
3	125	125/25 = 5

Since the rate of change is constant, the data is linear.

c.

x	y	
0	-3	
2	1	2
5	7	3
6	9	1

Since the x's do not increase by 1, the data cannot be linear.

d.

x	y	
-2	1	
0	2	1
3	3.5	1.5
9	6.5	3

$\frac{2}{1} = \frac{3}{1.5} = \frac{6}{3} = 2$

$\frac{\text{change in y}}{\text{change in x}} = 2$

Because the rate of change is 2, the data is linear.