



## 8-5 Reteach to Build Understanding

### Linear, Exponential, and Quadratic Functions

1. Finish the remaining numbers for each column that was started in each table. Then circle the word below each table that tells what is the same in each function.

x	y	Differences	
		1st	2nd
-2	-5		
-1	-6	$-6 - (-5) = -1$	
0	-3	$-3 - (-6) = 3$	$3 - (-1) = 4$
1	4		

- a. What is the same in a quadratic function?

1<sup>st</sup> Differences

2<sup>nd</sup> Differences

Ratio

x	y	Differences
		1st
-2	-11	
-1	-6	$-6 - (-11) = 5$
0	-1	$-1 - (-6) = 5$
1	4	

- b. What is the same in a linear function?

1<sup>st</sup> Differences

2<sup>nd</sup> Differences

Ratio

x	y	Differences		Ratios
		1st	2nd	
0	1			
1	4	$4 - 1 = 3$		
2	16	$16 - 4 = 12$	$12 - 3 = 9$	$\frac{16}{4} = 4$
3	64			

- c. What is the same in an exponential function?

1<sup>st</sup> Differences

2<sup>nd</sup> Differences

Ratio

2. Emma calculated the 1<sup>st</sup> differences, and got values of 1, 1, -3, and -5. Then Emma calculated the 2<sup>nd</sup> differences as -2 for all of them. She determined that the equation was linear. What was her error?

3. Finish filling in the table below to determine whether a function is linear, quadratic, or exponential.

x	y	Differences		Ratios
		1st	2nd	
0	-3			
1	-1	2		$\frac{1}{3}$
2	1		0	
3	3			

This function is \_\_\_\_\_.