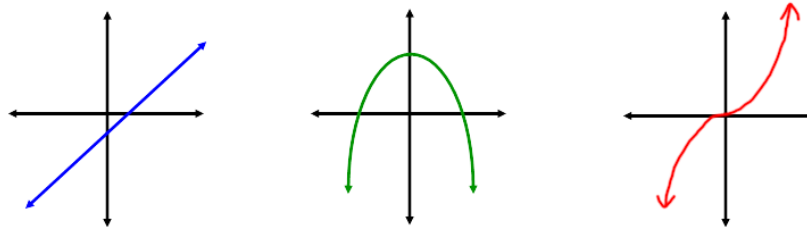Unit 5 Lesson 1 First Differences

Identify the following graphs as non-linear or linear.

Unit 5 – Linear Relations I
(Chapter 5 in textbook!)
Day 1 - First Differences

Example 1: How can we use a table of values to determine if a relationship is linear or non-linear?

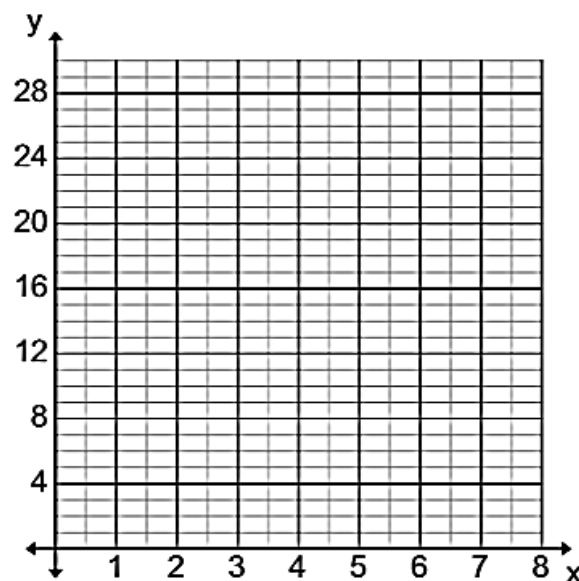a) Copy and complete the table of values for the relation $y = 4x + 8$

x	y
0	
1	
2	
3	
4	

b) Graph the relation:

c) Classify the relationship as linear (straight) or non-linear (not-straight)?

d) Describe the pattern in the x-values.

e) Add a third column to your table to record the change in the y-values (We call this the FIRST DIFFERENCES.)

Example 2) Is $y = x^2$ linear or non-linear?

Step 1: Create a table of values:

x	y
-2	
-1	
0	
1	
2	

Step 2: Calculate the first differences:

Step 3: Conclusion

Unit 5 Lesson 1 First Differences

Example 3: Does the table of values represent a linear or non-linear relation?

i) Calculate the first differences:

ii) Conclusion:

x	y
0	-3
2	-1
4	3
6	9
8	17

	LINEAR	NON-LINEAR
Graph		
Table of Values		
Equation		

Pg. 275 – 278 # 1, 2, 3, 5 (no equation required), 6ab, 9