Example

Label each graph as either a linear function or a nonlinear function.

Not a Straight Line *Straight Line*

| Non-linear Function | Linear Function |

Andie Says!

parabola
Non-Linear

Linear

Non-Linear

Got It?

Which graph(s) represent a nonlinear function? Explain.

I.   II.   III.

Non-linear   *NoN-ℒ*   *linear*

Example

Circle the tables that represent nonlinear functions. Explain your reasoning.

a.
Input	Output
1	−8
2	−16
3	−24
4	−32
5	−40

−8, −8, −8, −8
Linear −8

b.
Input	Output
1	1.5
2	2.5
3	5.5
4	8.5
5	10.5

+1, +3, +3, +2
Non-Linear

c.
Input	Output
1	1
2	3
3	6
4	10
5	15

+2, +3, +4, +5
Non-linear

Got It?

Does the table represent a linear or a nonlinear function? Explain.

Input	Output
1	5
2	6
3	9
4	14
5	21

+1, +3, +5, +7
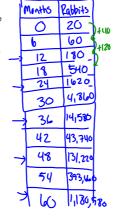*Non linear, the output's change is not constant*

Example

Suppose there are 20 rabbits on an island and that the rabbit population can triple every six months.

a. Make a table of values to find how many rabbits there would be after 2 years. *1,260 rabbits*

b. Does this relationship represent a nonlinear function? Explain. *Non-Linear*

c. Using the table, when would you expect the rabbit population to reach 1,000,000 rabbits?

5 years

Months	Rabbits
0	20
6	60
12	180
18	540
24	1620
30	4,860
36	14,580
42	43,740
48	131,220
54	393,660
60	1,180,980

+40, +120

Got It?

The table shows the population of a species of brown bat in Missouri.

Andie Says!

a. Is this relationship linear or nonlinear? Explain. *non-Linear*

b. Why can't you use this table to predict the bat population in 2011? *Not a constant rate of change*

Brown Bat Population

Year	Population
1999	19,900
2001	13,000
2003	14,100
2005	9,900
2007	8,600