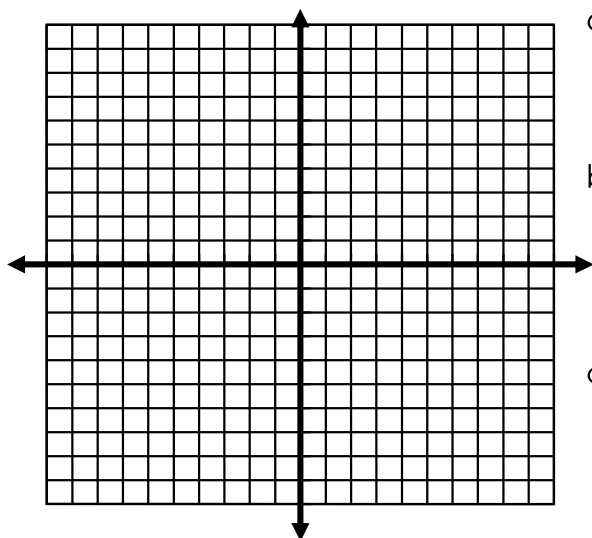


Comparing Linear and Exponential Functions (Day 6-1)

Recall: Fill in the table below and then graph.

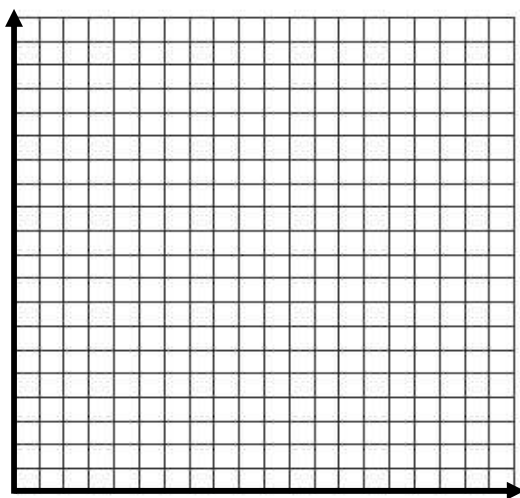
x	f(x)
1	-5
2	-2
3	1
4	4
5	
6	
7	



- What type of function is it?
- What is the average rate of change?
- What is the equation of the function?

1. Fill in the table and graph.

x	f(x)
1	2
2	4
3	8
4	16
5	
6	
7	



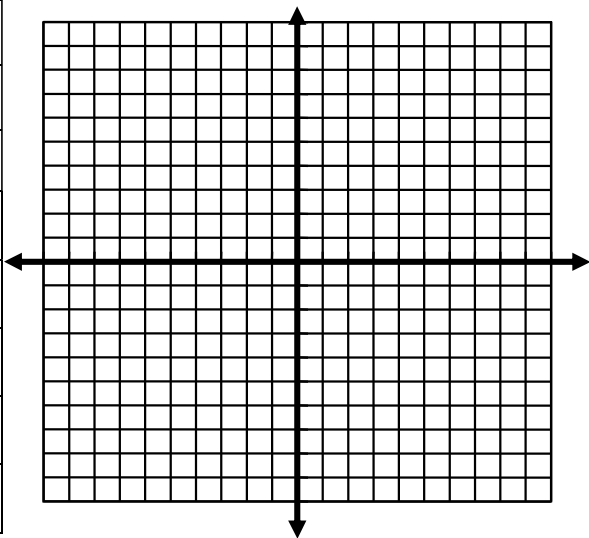
- Is the function linear? Why or why not?
- What is the pattern for $f(x)$?
- What type of function is it?

Linear Function: A function that has a _____. When looking at a table, there should be a pattern of _____ called a common _____.

Exponential Function: A function that has "x" as an _____. When looking at a table, there should be a pattern of _____ called a common _____.

2. Use the function $g(x) = 2x - 3$ to fill in the table below and graph.

x	g(x)
-3	
-2	
-1	
0	
1	
2	
3	



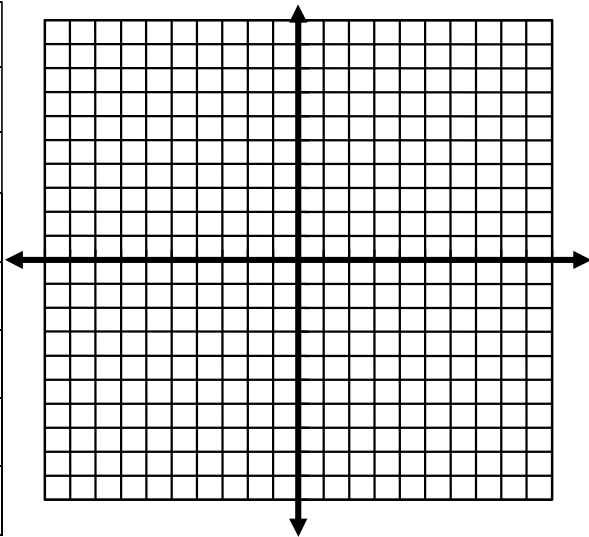
a) What type of function is this and why?

b) What is the domain?

c) What is the range?

3. Use the function $g(x) = \left(\frac{1}{2}\right)^x$ to fill in the table below and graph.

x	g(x)
-3	
-2	
-1	
0	
1	
2	
3	



a) What type of function is this and why?

b) What is the domain?

c) What is the range?

4. Describe each of the following functions as either linear or exponential:

a) $f(x) = 3^x + 2$

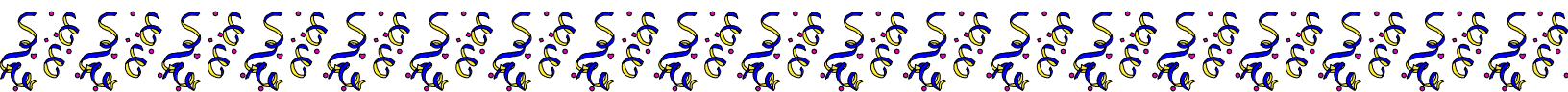
b) $2y = -5x + 1$

c) $y = 7$

d) $j(x) = -\frac{2}{3}x + 5$

e) $y = \left(\frac{3}{4}\right)^x$

f) $C(x) = 16,332(1.052)^x$



Classwork 6-1

1. Fill in the missing parts of each of the following tables **and** determine what type of function they represent. Give a brief explanation to why it is that function.

a)

x	f(x)
-3	-10
-2	-5
-1	0
0	
1	
2	
3	20

b)

x	f(x)
1	4
2	16
3	64
4	
5	1024
6	
7	

c)

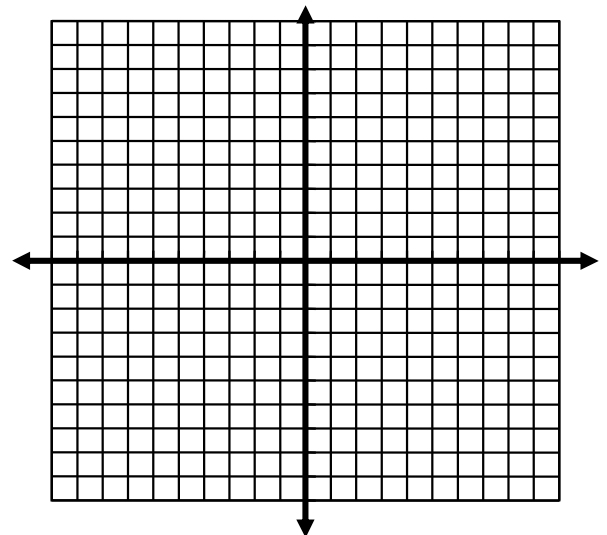
x	f(x)
2	512
3	256
4	128
5	
6	32
7	16
8	

d)

x	f(x)
-1	
0	12
1	
2	24
3	
4	36
5	

2. Graph the function:

$$f(x) = 2^x - 7$$





3. Match the letter of the appropriate equation and number of the appropriate context to the following tables:

x	f(x)
0	0
1	5
2	10
3	15
4	20
5	25
6	30

x	f(x)
0	64
1	32
2	16
3	8
4	4
5	2
6	1

x	f(x)
0	40
1	52
2	64
3	76
4	88
5	100
6	112

x	f(x)
0	1
1	3
2	9
3	27
4	81
5	243
6	729

Equation _____

Equation _____

Equation _____

Equation _____

Context _____

Context _____

Context _____

Context _____

Equations:

A. $f(x) = 12x + 40$

B. $g(x) = 3^x$

C. $h(x) = 64(.5)^x$

D. $p(x) = 5x$

Contexts:

1. The population of bacteria in a dish triples every day.

2. A waiter makes an hourly wage plus tips.

3. A speed walker walks at a constant speed.

4. Half of the teams are eliminated from a basketball tournament every round.

4. Tina wants to make a rectangular sandbox that has a perimeter of 76 inches. The width is five more than twice the length. Determine the dimensions of the sandbox.