

**Warmup 9/** (How old Margot was when she went into hiding + the number of people living in the annex – last Tuesday's date)

**Evaluate each:**

Created by Ms. Poe

1)  $-5(4) + 8$     2)  $|-8 - 3|$     3)  $\frac{1}{2} \cdot 7 - 5$     4)  $2 - 3(-4)$

**-12**                      **11**                      **-1½**                      **14**

**Figure out a rule for each. Write them in function notation.**

5)

x	b(x)
3	10
7	26
8	30
20	78
0	-2

**$b(x) = 4x - 2$**

6)

x	c(x)
3	12
8	67
2	7
-8	67
10	103

**$c(x) = x^2 + 3$**

# Extra question

- What do you think is the most common letter that is used to name a function?
- What about the second most common?

# Functions Quiz....

- Will likely be Tuesday or Wednesday of next week

# Two days ago....

- We learned how to **evaluate** functions.
- **EVALUATE** basically means “**find the output**”
- If you evaluate functions multiple times, you can start to see some patterns.
- THIS IS VERY IMPORTANT! MATH IS ALL ABOUT PATTERNS!!!
- **Suppose  $f(x) = 3x + 1$ .**
- **$f(0) = ?$**
- **$f(1) = ?$**
- **$f(2) = ?$**
- **$f(3) = ?$**
- **$f(4) = ?$**

- $f(x) = 3x + 1$

x	f(x)
0	1
1	4
2	7
3	10
4	13

- $g(x) = x^2 + 5$

x	f(x)
-2	9
-1	6
0	5
1	6
2	9

← Situations like this are why it is a good idea to always pick positive AND negative values for your inputs.

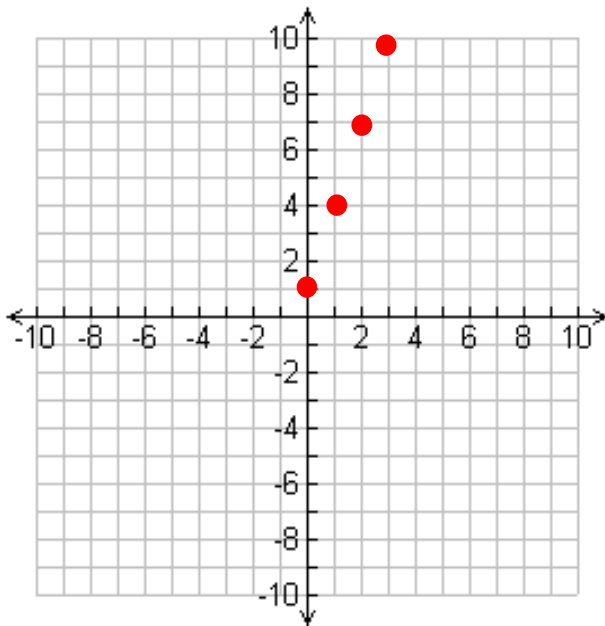
**Discuss: What are some similarities and differences between these two tables???**

# How could we SEE the patterns in the table in a visual way???

- We can **graph** the function!!!
- The graph of a function is a “picture” of all the inputs and outputs of that function.
- A table shows the patterns of the function with numbers, while a graph shows the same patterns visually.

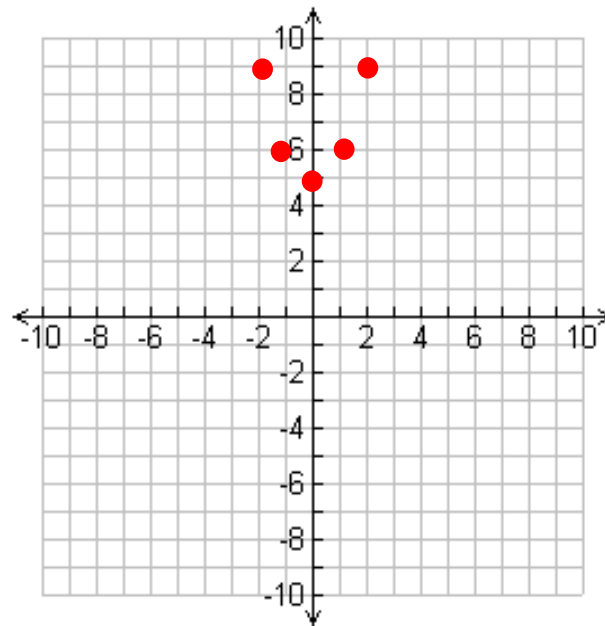
- $f(x) = 3x + 1$

x	f(x)
0	1
1	4
2	7
3	10
4	13



- $g(x) = x^2 + 5$

x	f(x)
-2	9
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0	5
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# Graphing Functions

## Objectives:

- Draw the graph of a function
- Understand how graphs can be useful in analyzing a function



# Graphing Functions

## **Objectives:**

- Draw the graph of a function!
- Understand what a graph is – it is a picture of all the inputs and outputs that work for that function

# Graph the function:

$$f(x) = -2x + 1$$

What do you think the graph would look like?

x	f(x)

$$f(x) = -2x + 1$$

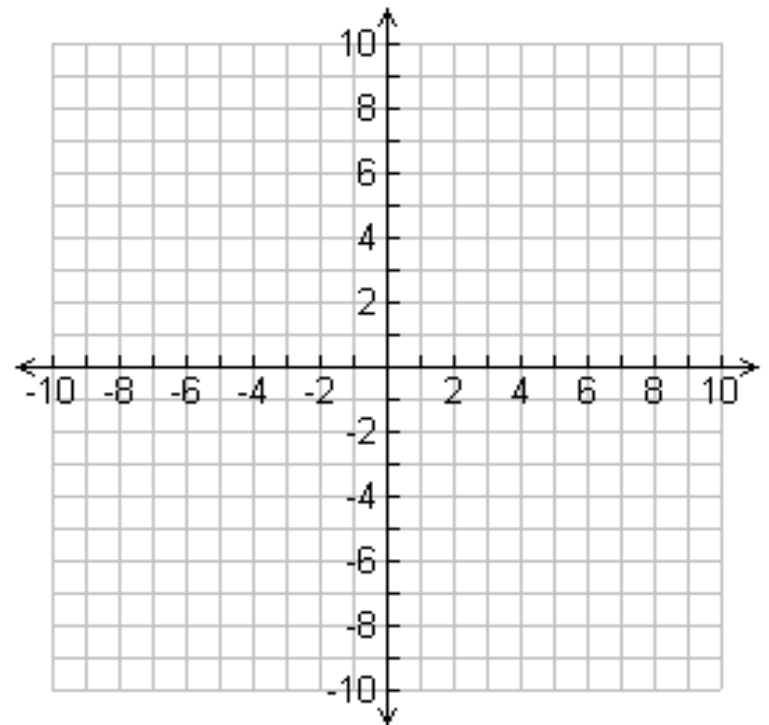
What do you think the graph would look like?

# Graph the function:

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

What do you think the graph would look like?

x	f(x)



# IMPORTANT POINTS FOR GRAPHING:

- The goal is to graph enough points so that you can see the **shape** of the graph. Different types of equations have different types of graphs.
- Each row of the table is a point on the graph. The “x” is x, and the **“a(x)” is y**.
- Unless I specify otherwise, graph **seven** points. This should be enough to see the shape of the graph.
- If your points go off the graph, **you need to pick different points**. (Unless it is really close to the edge of the graph, then you can just estimate where it would be)
- **YOU MUST CONNECT THE POINTS**, because the 7 numbers you chose are not the only possible numbers!
- **Put arrows at the end** to show that the graph goes forever.

# CLASSWORK/HOMEWORK: Function Graphing Worksheet