Created by: Cayden Leslie
Warmup $9 /\left(\sqrt{(4 \times 4)^{2}}-3\right)$
Evaluate each:

1) $-5(4)+8$
2) $|-8-3|$
11
3) $\frac{1}{2} \cdot 7-5$
-1 $1 / 2$
4) $2-3(-4)$
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 |


| 6$)$ | $x$ |
| :---: | :---: |$c(x) |$| 3 | 12 |
| :---: | :---: |
| 8 | 67 |
| 2 | 7 |
| -8 | 67 |
| 10 | 103 |

## BONUS: Write a rule in function notation:

| $\mathbf{x}$ | $\mathbf{g}(\mathbf{x})$ |
| :--- | :--- |
| 8 | 36 |
| 2 | 18 |
| 5 | 27 |
| -4 | 0 |
| 7 | 33 |

## $g(x)=3 x+12$

| $x$ | $g(x)$ |
| :--- | :--- |
| 0 | 12 |
| 1 | 15 |
| 2 | 18 |
| 3 | 21 |
| 4 | 24 |

## Functions Quiz....

- Will likely be Wednesday or Thursday 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 $f(x)=3 x+1$.
- $f(0)=$ ?
- $f(1)=$ ?
- $f(2)=$ ?
- $f(3)=$ ?
- $f(4)=$ ?
$\cdot f(x)=3 x+1$
$-g(x)=x^{2}+5$

| $x$ | $f(x)$ |
| :---: | :---: |
| 0 | 1 |
| 1 | 4 |
| 2 | 7 |
| 3 | 10 |
| 4 | 13 |


| x | $\mathrm{f}(\mathrm{x})$ |  |
| :---: | :---: | :---: |
| -2 | 9 | Situations like this are |
| -1 | 6 | $\sim_{\text {good idea to }}^{\text {why it is a }}$ |
| 0 | 5 | always pick |
| 1 | 6 | $\begin{aligned} & \text { gatioi' } \\ & \text { lues } \end{aligned}$ |
| 2 | 9 | in |

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

# How could we SEE the patterns in the table in a visual way??? <br> -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.


## How are these going to look different???



## TODAY: 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:

$f(x)=-2 x+1$
What do you think the graph would look like?

| x | $\mathrm{f}(\mathrm{x})$ |
| :---: | :---: |
| -3 | 7 |
| -2 | 5 |
| -1 | 3 |
| 0 | 1 |
| 1 | -1 |
| 2 | -3 |
| 3 | -5 |



## Graph the function:

$f(x)=x^{2}$
What do you think the graph would look like?

| $x$ | $f(x)$ |
| :--- | :--- |
| -3 | 9 |
| -2 | 4 |
| -1 | 1 |
| 0 | 0 |
| 1 | 1 |
| 2 | 4 |
| 3 | 9 |



## 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

- Whatever you don't finish is homework!!!
- ALSO, your ALEKS placement test + 30 minutes of topics is due on Monday!

