## WARMUP 10/(SLOPE OF $\boldsymbol{y}=\mathbf{2 x}+\mathbf{3})$

1. How would the graph of $y=2 x+1$ look It would be different than the graph of $y=5 x+1$ ? less steep.
2. How would the graph of $y=3 x+8$ look Same slope, different than the graph of $y=3 x+2$ ? $\quad \begin{aligned} & \text { but higher } \\ & \text { up (bigger }\end{aligned}$
3. How would the graph of $y=-\frac{2}{3} x-4$ look $_{\mathrm{lt}}^{\mathrm{y} \text {-intercept) }}$ we different than the graph of $y=\frac{2}{3} x-4 ? \quad \begin{aligned} & \text { decreasing } \\ & \text { instead of }\end{aligned}$
4. How would the graph of $y=5 x$ look different than the graph of $\mathrm{y}=\frac{1}{5} x$ ? $\quad \begin{aligned} & \text { It would be } \\ & \text { much steeper. }\end{aligned}$
5. How would the graph of $y=2 x-10$ look different than the graph of $\mathrm{y}=-10+2 x$ ? they would be the same

## TURN IN WARMUPS

## ALERS OVER BREAK???

- This week and fall break COMBINE for one 30-minute period.
- If you do ALEKS this week, you don't have to do it over fall break.
- If you don't do ALEKS this week, you have to do it over fall break.

Before, all you knew was that "something times x plus something" makes a straight line. Now you now WAY more...

# $y=m x+b$ 

This number
controls how steep
the graph is
So START AT THIS
NUMBER on the $y$-axis
From your y-
intercept, count up
or down this much,
and right 1
If it's a fraction, you can do
numerator = up or down
and denominator $=$ right

REMEMBER:

- This is just a shortcut!!!
- You can always fill out a table to graph an equation.
- BUT, you don't need the table anymore. You already know that $y=3 x+8$ is going to start at the 8 and increase by 3 for each $x$.
$\bigcirc$ You already know that $y=\frac{1}{2} x-4$ is going to start at the -4 and increase by 1 for every 2 x .


## DURING THIS LESSON..

- You may not be working on your homework.
- However, if we get done with our lesson early, we will have time in class to work on it!


## NON-EXACT GRAPH...

- Which could be the equation?
A. $y=x+4$


$$
\begin{aligned}
& \text { B. } y=-x+4 \\
& \text { C. } y=x-4 \\
& \text { D. } y=-x-4
\end{aligned}
$$

## 8 CHOICE MULTIPLE <br> CHOICE!!

- Which could be the equation?

$$
\begin{aligned}
& \text { A. } y=\frac{1}{3} x+4 \\
& \text { B. } y=\frac{1}{3} x-4 \\
& \text { C. } y=3 x+4 \\
& \text { D. } y=3 x-4
\end{aligned}
$$

E. $y=-\frac{1}{3} x+4$
F. $y=-\frac{1}{3} x-4$
G. $y=-3 x+4$
H. $y=-3 x-4$

## STORY PROBLEM

- A taxi fare $y$ can be determined by the equation $y=0.50 x$ +3.50 , where $x$ is the number of miles traveled.
- What is the graph going to look like? Describe it. $Y$-intercept at 3.5 ; will increase 0.5 for each $x$
- Draw the graph.
- What is the slope of the line? What does this mean in terms of the situation?

$$
\text { Slope }=0.5 \text {; each mile costs } 0.5 \text { dollars ( } 50 \text { cents) }
$$

- What is the y-intercept of the line? What does this mean in terms of the situation?
y-intercept = 3.5; going 0 miles costs $\$ 3.50$ ("flat fee" of $\$ 3.50$ )


## EOUATION FOR THIS SITUATION?

- You already have 60 pineapples. You then buy 8 more pineapples per day.
$\bigcirc$ Write an equation in the form $y=m x+b$ to represent the situation.


## IN ANY REAL=WORLD SITUATION:

- The slope is the RATE of increase or decrease.
- (dollars per day, inches per year, etc.)
$\odot$ The $y$-intercept is the starting amount.


# $(9,1)$ and $(1,-3)$ 

- FIRST find the slope WITHOUT the graph.
- Then graph the two points and find the slope that way. Hopefully they match!


$$
\begin{array}{rll}
m & =\frac{-3-1}{1-9} \\
& =\frac{-4}{-8} & \begin{array}{l}
\text { Positive!!!! } \\
\text { Negative } \\
\text { divided by }
\end{array} \\
& =\frac{1}{2} & \begin{array}{l}
\text { negative is } \\
\text { positive!!! }
\end{array}
\end{array}
$$

# RATE OF CHANGE REVIEW 

Anne and Robert have a lemonade stand. Is he making money at a constant rate? If so, what is that rate? If not, during which time periods did they make money the fastest and slowest? (They started with negative profit because they spent money to make the lemonade!)

| Hour | Total Profit |
| :--- | :--- |
| 0 | -5 |
| 3 | 13 |
| 5 | 25 |
| 9 | 43 |
| 11 | 59 |



Hour
$\frac{\$}{2}$

$$
=\$ 6 \text { per } \mathrm{hr}=\$ 6 \text { per } \mathrm{hr}=\$ 4.50 \text { per } \mathrm{hr}=\$ 8
$$

## REVIEW: SLOPE=INTERCEPT FORM

- Graph each. When I approve of your answer, move onto the next one.
- $y=2 x-3$
- $y=-2 x-3$
- $y=\frac{2}{5} x+5$
- $y=-\frac{1}{4} x$
- $y=x-4$
- $y=-4 x$
- $y=8$
$\square$ TONIGHT
- You MUST log onto my website, find the answer key, and use it to grade the worksheet.
- I DON'T WANT TO SEE ERASER MARKS.
- All corrections should go in a different color.
$\bigcirc$ I will not be here tomorrow to answer questions about the worksheet. The answer key is how you can get feedback on it!


## HOMEWORK: SLOPE=\|NTERCEPT FORM 4-SECTION WORKSHEET

- Work individually
- Help each other if they ask
- If you feel fuzzy on this, please try a few from each section so that you don't get stuck later!

