## Warmup $9 /(22+10 \div 2)$

Find the slope of each line. If it is hard to count the squares from where you're sitting, use the red numbers to help you.

1) Blue line
2) Green line
3) Purple line
4) Yellow Line


Blue slope $=\frac{1}{3}$
Green slope $=-3$
Purple slope $=\frac{0}{10}=0$

Yellow slope $=\frac{13}{0}=$ UNDEFINED!!!

- If the slope is something like $\frac{0}{7}$, you can't leave it like that. You must simplify it to just 0.
- Similarly, if the slope is something like $\frac{-4}{0}$, you must write "undefined."


## Comparing Slopes...

Slope of 1
Slope less than 1
Slope greater than 1




# On a NORMAL graph: (scaled by 1's) 

- Slope = 1: "Halfway" steep
- Slope < 1: Not that steep
- Slope >1: Pretty steep



## MORE WARMUPS

- Number your warmup paper from 5 to 12.

$$
\text { 5) } 4-7
$$

-3
6) $77-81$
-4
7) $-3-10 \quad-13$
8) $-6-6 \quad-12$
9) $5-(-4)$ 9
10) 17 - (-16) 33
11) $-30-(-2) \quad-28$
12) $-10-(-18)$

## Check HW

## Table of Contents

p. 1 Converting Fractions and Decimals (1.1)
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## Slope

Objectives:
-Be able to find the slope of a line on a graph (Already done)
-Be able to find the slope between two points WITHOUT USING A GRAPH!

\section*{How many words per minute? Min words <br> | 0 | 48 |
| :---: | :---: |
| 4 | 60 |
| 8 | 72 |
| 12 | 84 |
| 16 | 98 | <br> Rate of Change $=\frac{12}{4}=3$}

12 words every 4 minutes
3 words per minute

## Slope?

$$
m=\frac{2}{1}=2
$$

| $\mathbf{x}$ | 0 | 1 | 2 | 3 | 4 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathbf{y}$ | -6 | -4 | -2 | 0 | 2 |


| x | 0 | 3 | 6 | 9 | 12 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| y | 27 | 21 | 15 | 9 | 3 |
| $m=\frac{-6}{3}=-2$ |  |  |  |  |  |

## How do I get the slope?

- Between points $(3,2)$ and $(5,10)$



## How do I get the slope?

- Between points $(-4,8)$ and $(2,6)$



## Formula for slope WITHOUT a graph:

- You can get the change in y by subtracting the $y$ coordinates.
- You can get the change in $x$ by subtracting the $x$ coordinates.


## The slope between $\left(\mathrm{x}_{1}, \mathrm{y}_{1}\right)$ and $\left(\mathrm{x}_{2}, \mathrm{y}_{2}\right)$ is: <br> $$
m=\frac{y_{2}-y_{1}}{x_{2}-x_{1}}
$$

The 2's and 1's are not exponents. They are just LABELS. $y_{2}-y_{1}$ just means "the $2^{\text {nd }} y$ minus the $1^{\text {st }} y$ "

## Common Error Alert!!!

## DO NOT PUT <br> THE X'S ON <br> TOP.

## Find the slope:

1. Between $(1,4)$ and $(3,9)$
$m=\frac{9-4}{3-1}=\frac{5}{2}$
2. Between $(-3,-4)$ and $(7,1)$
$m=\frac{1-(-4)}{7-(-3)}=\frac{5}{10}=\frac{1}{2}$
3. Between $(-6,2)$ and $(-4,-10)$

$$
m=\frac{-10-2}{-4-(-6)}=\frac{-12}{2}=-6
$$

## Would you get different answers?

What if I switched the order of the x's and the y's? Would it still work?

## $(5,9)$ and $(7,3)$.

$\underline{y_{1}-y_{2}}$ also works. You just have to make sure you $x_{1}-x_{2}$ subtract the $x$ 's and $y$ 's in the same order!!!

## Find the slope 2 different ways



## Homework

p. $185(1-8,11,12)$

