

# Warm Up

9/19

Solve for x:

$$7 + 3(2 - 4x) = 4(7 - x) + 1$$

Distribute

$$7 + 6 - 12x = 28 - 4x + 1$$

$$13 - 12x = 29 - 4x$$

Combine Like Terms

$$\begin{array}{r} +4x \qquad \qquad +4x \\ \hline \end{array}$$

$$13 - 8x = 29$$

$$\begin{array}{r} -13 \qquad \qquad -13 \\ \hline \end{array}$$

$$-8x = 16$$

$$\begin{array}{r} \underline{-8} \qquad \underline{-8} \\ \end{array}$$

$$x = -2$$

Name \_\_\_\_\_

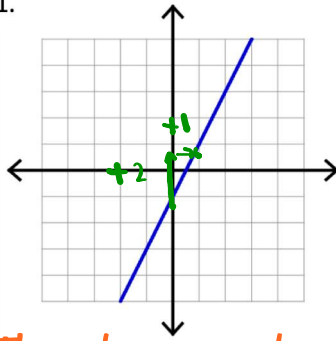
# Homework Questions?

## Calculating Slope From a Graph or 2 Coordinate Pairs

**Find slope using a graph.** (Make sure to select points with whole number coordinates.)

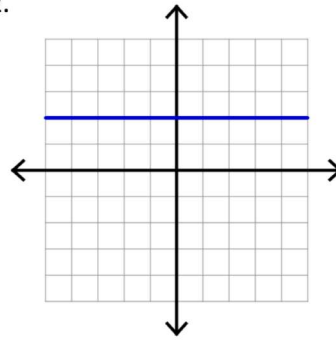
Remember: Slope =  $\frac{\Delta y}{\Delta x}$  This should be written for every problem where you have to calculate slope.

1.



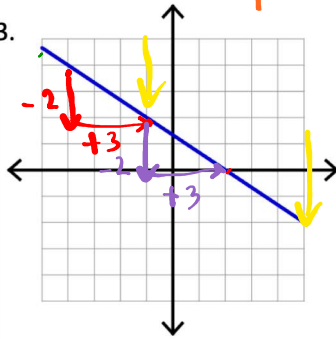
$$\frac{\Delta y}{\Delta x} = \frac{2}{1} = 2$$

2.



*The slope is always the same, no matter which points you use!*

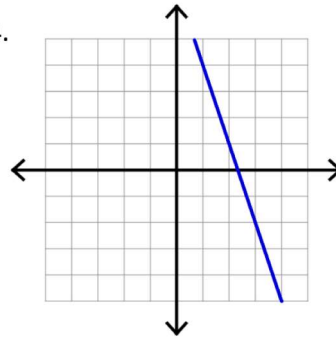
3.



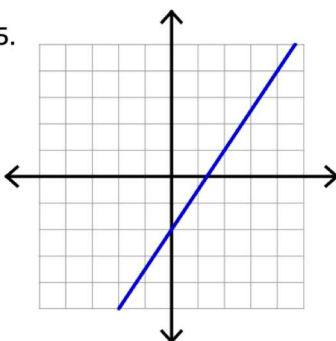
$$\frac{\Delta y}{\Delta x} = \frac{-2}{3}$$

$$\frac{\Delta y}{\Delta x} = \frac{-2}{3}$$

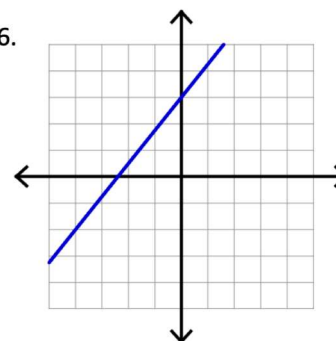
4.



5.



6.



Find the slope between two points. Show your thinking!

Remember: Slope =  $\frac{\Delta y}{\Delta x}$  This should be written for every problem where you have to calculate slope.

7. (1, -19), (-2, -7)

8. (-4, 7), (-6, -4)

$$-2 \begin{matrix} \left\langle -4, 7 \right\rangle \\ -6, -4 \end{matrix} - 11 \quad \frac{\Delta y}{\Delta x} = \frac{11}{2}$$

$$+2 \begin{matrix} \left\langle -6, -4 \right\rangle \\ -4, 7 \end{matrix} + 11 \quad \frac{\Delta y}{\Delta x} = \frac{11}{2}$$

Order doesn't matter.

9. (20, 8), (9, 16)

10. (3, 0), (-11, -15)

$$-11 \begin{matrix} \left\langle 20, 8 \right\rangle \\ 9, 16 \end{matrix} + 8 \quad \frac{\Delta y}{\Delta x} = \frac{8}{-11} \\ = -\frac{8}{11}$$

# Quiz Topics

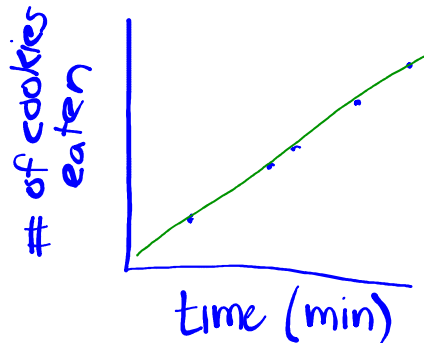
SWBAT:

- Describe patterns of change in tables and graphs using proper mathematical language.

increase/decrease  
rate of change/slope  $\frac{\Delta y}{\Delta x}$   
mult/divide  
linear/non linear

x-values } these change  
y-values } NOT  
x-axis  
y-axis

- Determine when data points should be connected on a graph. connect if you can have fractions of the units of our variables



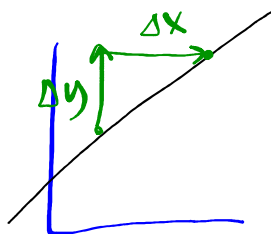
- Solve for "x" **algebraically**, using proper format.

Transformation Lines

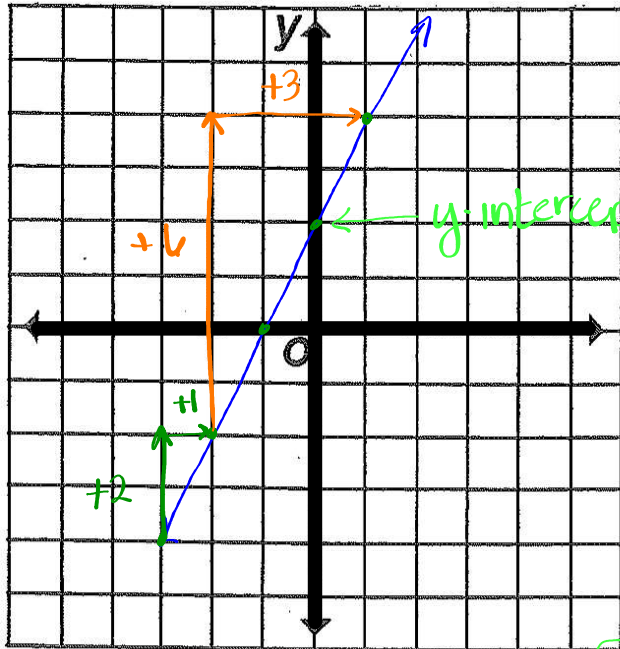
Properties of Equality (show how used)

- Calculate slope given a graph or two points.

$$\frac{\Delta y}{\Delta x}$$



$$\Delta x \left\langle \begin{matrix} (a, b) \\ (c, d) \end{matrix} \right\rangle \Delta y$$



$$y = mx + b$$

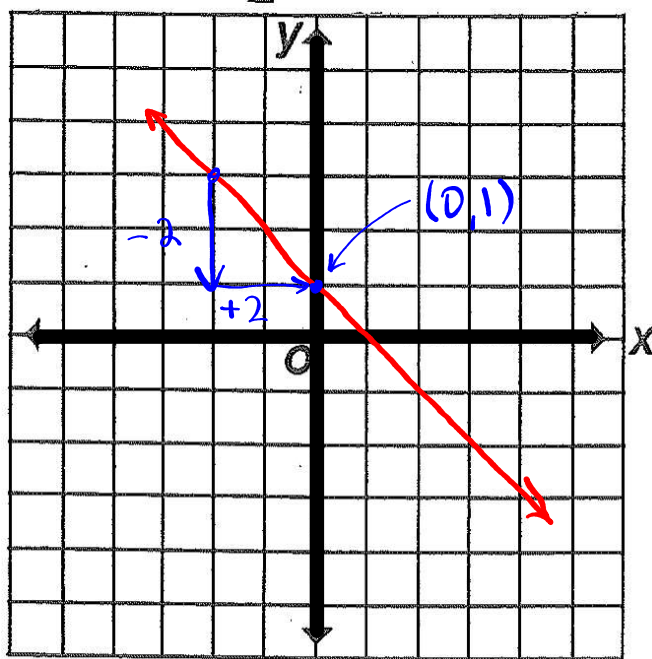
↑ slope  
↑ y-int

y-intercept

$$\frac{\Delta y}{\Delta x} = \frac{2}{1} = 2$$

$$\frac{\Delta y}{\Delta x} = \frac{6}{3} = 2$$

$$y = 2x + 2$$



$$\text{slope} = \frac{\Delta y}{\Delta x}$$

$$y = mx + b$$

$$\frac{\Delta y}{\Delta x} = \frac{-2}{2} = -1$$

$$y = -1x + b$$

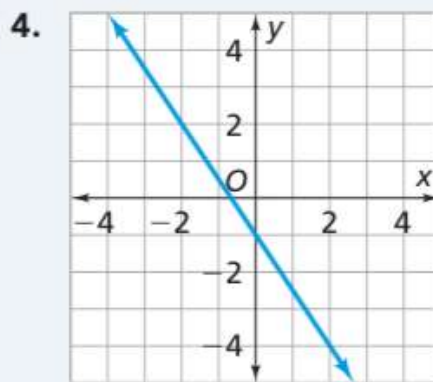
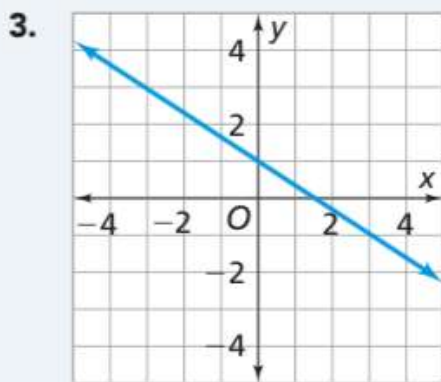
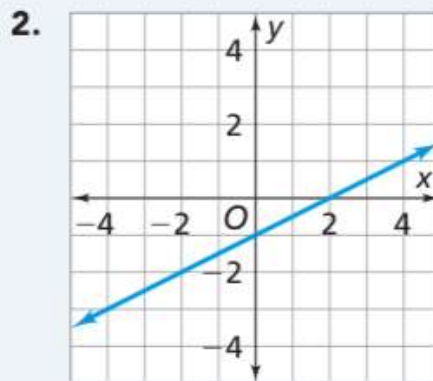
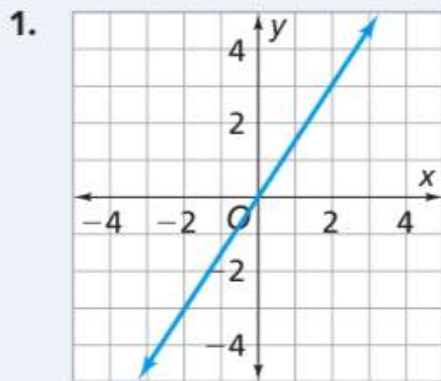
$$y = -1x + 1$$

$$y = -x + 1$$

## Problem 2.2

Use the data given in each question to find the equation of the linear function relating  $y$  and  $x$ .

- A** For the functions with the graphs below, find the slope and  $y$ -intercept. Then write the equations for the lines in the form  $y = mx + b$ .



- B** 1. Find equations for the linear functions that give these tables. Write them in the form  $y = mx + b$ .

a.

$x$	-2	-1	0	1	2
$y$	-1	1	3	5	7

b.

$x$	-6	-2	2	6	10
$y$	-4	-2	0	2	4

2. For each table, find the unit rate of change of  $y$  compared to  $x$ .
3. Does the line represented by this table have a slope that is greater than or less than the equations you found in part 1(a) and part 1(b)?

$x$	-1	0	1	2	3
$y$	4	1	-2	-5	-8

# Homework

Finish classwork