Today's Plan:

Learning Target (standard): I will describe the slope of a line as a rate of change. I will graph linear equations using the slope-intercept method.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

NAME $y=mx+b$ #39

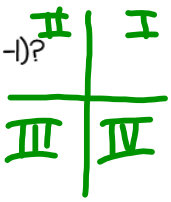
$2=-3(4)+b$ **BELL RINGER** $2=-12+b$ $b=14$

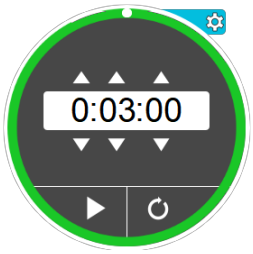
1.) Write the equation of the line in slope-intercept form that goes through the point (4, 2) and has a slope of -3.

$y=-3x+14$

2.) In which quadrant is the point (4, -1)?

IV





3.) Solve $-4 = 2(x - 1)$.

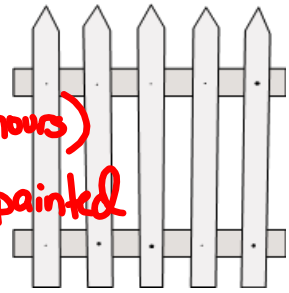
$-4=2x-2$

$+2 \quad +2$

$-2=2x$

$x=-1$

State the independent and dependent variable. Find the rate of change. Use the 6 step process.



Hours	Fences Painted
3	1
6	2
9	3
12	4

① independent – time (hours)
dependent – # fences painted

② $RoC = \frac{\Delta \text{dependent}}{\Delta \text{independent}}$

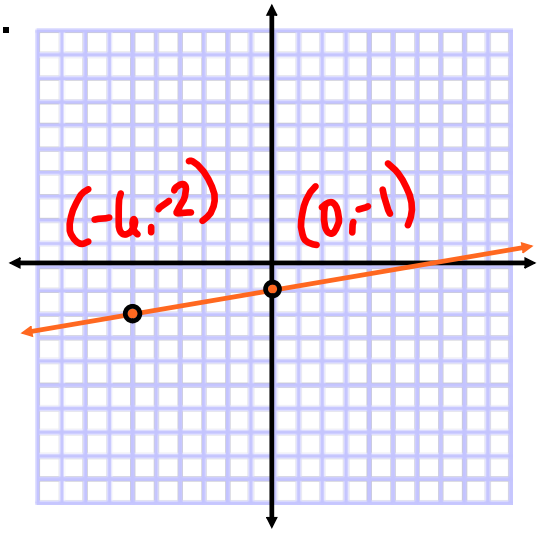
③ $RoC = \frac{\Delta \text{fences painted}}{\Delta \text{time (hours)}}$

④ $RoC = \frac{4-1 \text{ fences}}{12-3 \text{ hours}}$

⑤ $RoC = \frac{3}{9} = \frac{1 \text{ fence}}{3 \text{ hours}}$

⑥ One fence can be painted every 3 hours.

Find the slope of the line.

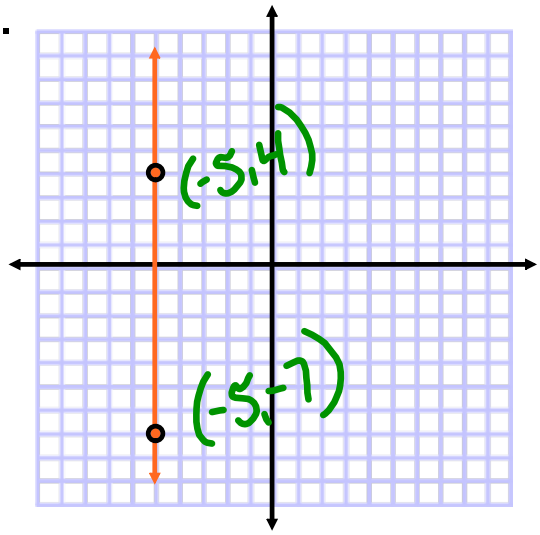


$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\Delta y}{\Delta x}$

$= \frac{-1+2}{0+6}$

$m = \frac{1}{6}$

Find the slope of the line.



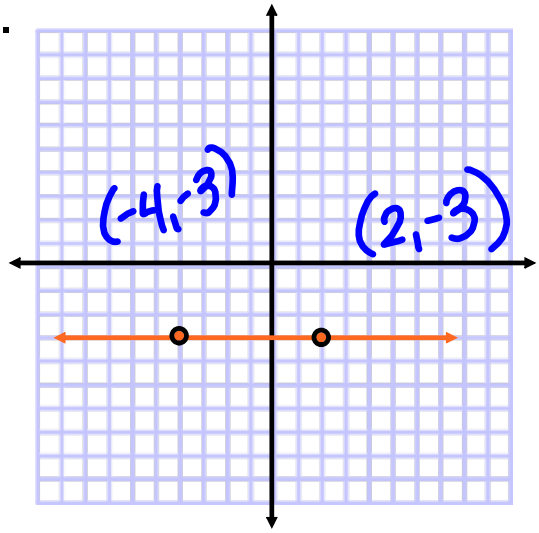
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\Delta y}{\Delta x}$$

$$= \frac{-7-4}{-5+5}$$

$$= -\frac{11}{0}$$

$m = \text{und}$

Find the slope of the line.



$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\Delta y}{\Delta x}$$

$$= \frac{-3+3}{2+4}$$

$$= \frac{0}{6}$$

$m = 0$

Each pair of points lies on a line with the given slope. Find the missing value.

$(2,2),(5,y)$

$m=2$

$$m=\frac{y_2-y_1}{x_2-x_1}$$

$$2=\frac{y-2}{5-2}$$

$$\frac{2}{1}=\frac{y-2}{3}$$

$$6=y-2$$

$$y=8$$

Each pair of points lies on a line with the given slope. Find the missing value.

$(9,4),(x,6)$

$m=-\frac{1}{3}$

$$m=\frac{y_2-y_1}{x_2-x_1}$$

$$-\frac{1}{3}=\frac{6-4}{x-9}$$

$$-\frac{1}{3}=\frac{2}{x-9}$$

$$-1(x-9)=2(3)$$

$$-x+9=6$$

$$-x=-3$$

$$x=3$$

Each pair of points lies on a line with the given slope. Find the missing value.

$(9,4),(x,6)$

$m=-\frac{1}{3}$

$m=\frac{y_2-y_1}{x_2-x_1}$

$-\frac{1}{3}=\frac{6-4}{x-9}$

$-\frac{1}{3}=\frac{2}{x-9}$

$-1(x-9)=6$

$-x+9=6$

$-x=-3$

$x=3$

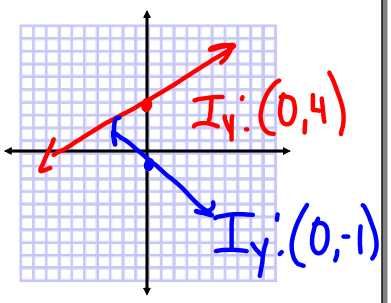
Graphing using Slope-Intercept Form:

- the slope-intercept form of a linear equation is

$$y=mx+b$$

- the slope of the line is m
  - the slope is sometimes called $\frac{rise}{run}$
- the y-intercept of a line is the point where the line crosses the y-axis

$I_y:(0,b)$



$y=-2x+4$

$m=-2$

$I_y:(0,4)$

$y=\frac{3}{4}x-5$

$m=\frac{3}{4}$

$I_y:(0,-5)$

Graphing using Slope-Intercept Form:

- plot the y-intercept
- use the slope to rise up from the y-intercept and the sign of the slope to run
  - if the slope is negative run to the left
  - if the slope is positive run to the right
- from the y-intercept, use the slope to go down and the sign of the slope to run
  - if the slope is negative run to the right
  - if the slope is positive run to the left

opposite

opposite

m(+)

m(−)

Graph using the slope-intercept method.

$$-2x + 5y = 10$$

+2x +2x

$$\frac{5y}{5} = \frac{2x}{5} + \frac{10}{5}$$

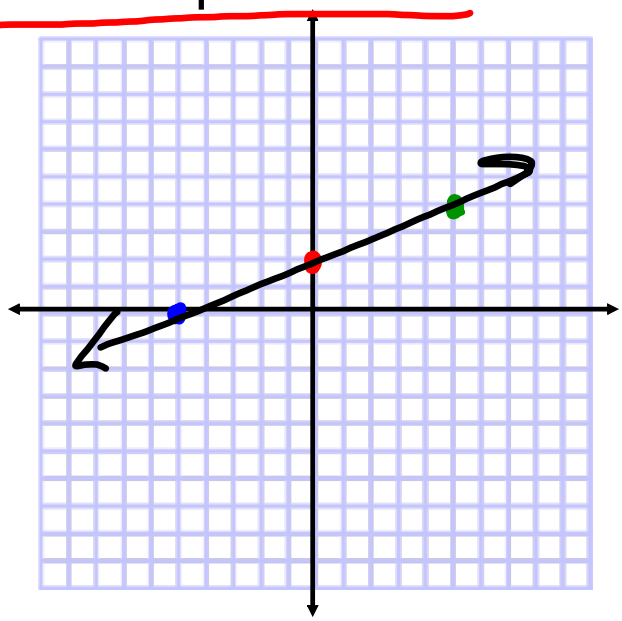
$$y = \frac{2}{5}x + 2$$

$$m = \frac{2}{5}$$

rise

run

$I_y: (0,2)$



Graph using the slope-intercept method.

$$3x - 6y = 18$$

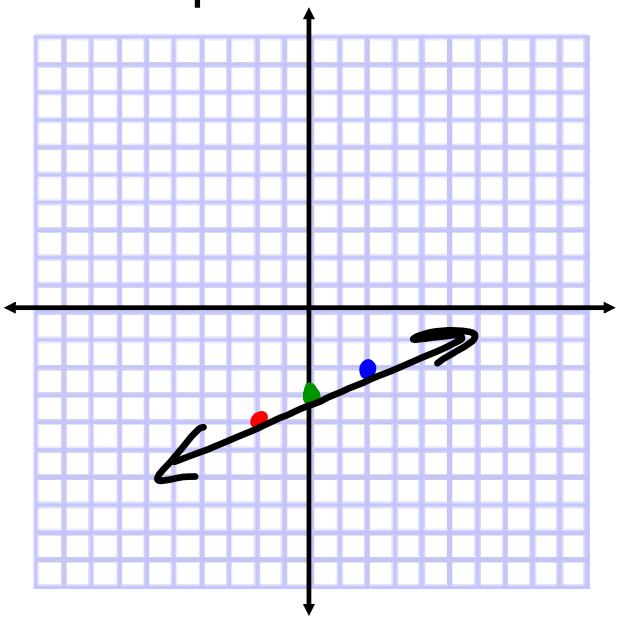
$-3x \qquad -3x$

$$\frac{-6y}{-6} = \frac{-3x}{-6} + \frac{18}{-6}$$

$$y = \frac{1}{2}x - 3$$

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

$$I_y: (0,-3)$$



Assignment:

Graphing using Slope-Intercept

#1-10

* Write the slope and y-intercept *