

Forms of Linear Equations

m: slope ex $m=2$ $m=-\frac{1}{3}$

b: y-intercept ex. $(x, y) = (0, 2)$

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

$$y = \textcircled{m}x + \textcircled{b}$$

m: slope $m = -\frac{2}{3}$
 (x_1, y_1) = a point on the line $(0, 1)$ or $(\frac{1}{2}, \frac{3}{4})$
 x_1, y_1

$$y - 1 = -\frac{2}{3}(x - 0)$$

$$y - \textcircled{y_1} = \overset{\text{slope}}{\downarrow} \textcircled{m} (x - \textcircled{x_1})$$

$\uparrow y_1$ the y-coordinate of a point on the line $\downarrow x_1$ is the x-coordinate of a point on the line

A, B, C : integers
 (No decimals or fractions)

A must be positive

$$\boxed{3x + 2y = 21}$$

$$\textcircled{A}x + \textcircled{B}y = \textcircled{C}$$

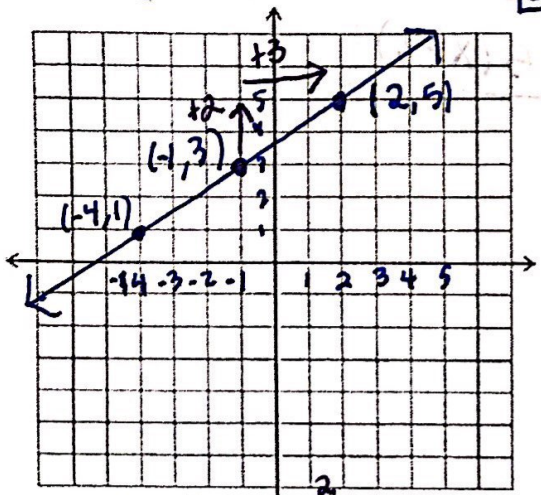
10/3 $y - y_1 = m(x - x_1)$

2.2 Point Slope Form Guided Notes

Name _____

Ex 1. Write in pt-slope form given 1pt and the slope.

$y - 3 = \frac{2}{3}(x - 1) \Rightarrow y - 3 = \frac{2}{3}(x + 1)$



pt. $(-1, 3)$ $m = \frac{2}{3}$
 x_1, y_1

Ex 2.

Write an equation in point-slope form passing through $(2, -4)$ and a slope of $\frac{1}{2}$.

point $(x, y) = (2, -4)$ $y - 4 = \frac{1}{2}(x - 2)$
 $m = \frac{1}{2}$

$y + 4 = \frac{1}{2}(x - 2)$

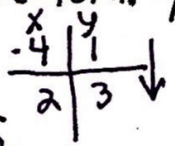
YT: PT. $(2, -3)$ slope: -4

$y + 3 = -4(x - 2)$

Ex 3.

Write an equation in point-slope form passing through the points $(-4, 1)$ and $(2, 3)$

1. Find slope: $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 1}{2 - (-4)} = \frac{2}{6} = \frac{1}{3}$



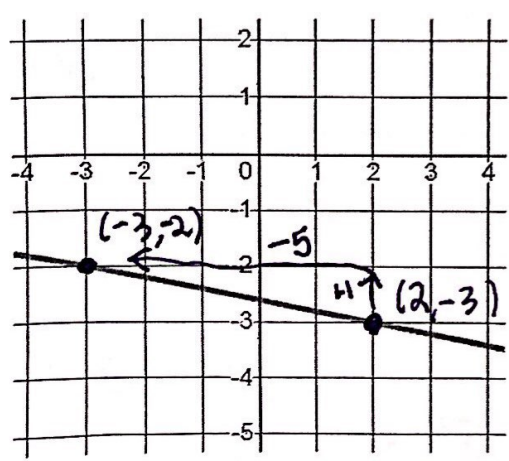
2 use either point $(2, 3)$ and $m = \frac{1}{3}$

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

$y - 1 = \frac{1}{3}(x + 4)$

Writing Equations given a graph

Ex 4.



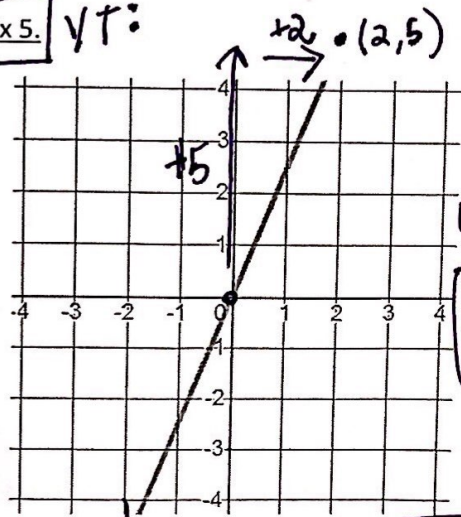
Find 2 pts, Find slope

$(x_1, y_1) = (-3, 2)$ $m = -\frac{1}{5}$

$y - 2 = -\frac{1}{5}(x - (-3))$
 $y + 2 = -\frac{1}{5}(x + 3)$

Ex 5.

YT:



$y = \frac{5}{2}(x - 0)$
 $y = \frac{5}{2}x$

$y - 5 = \frac{5}{2}(x - 2)$
 OR
 $y + 5 = \frac{5}{2}(x + 2)$