$(-5, 1)$

$(2, 3)$

$(-2, -3)$

$(1, 0)$

$(4, -4)$

$(0, 3)$

≈

plotting points q1 homework

write small in your notes

$(-5, 1)$ ... 5 *left* and 1 up

$(2, 3)$ ... 2 right, 3 up

$(-2, -3)$ ... 2 left, 3 down

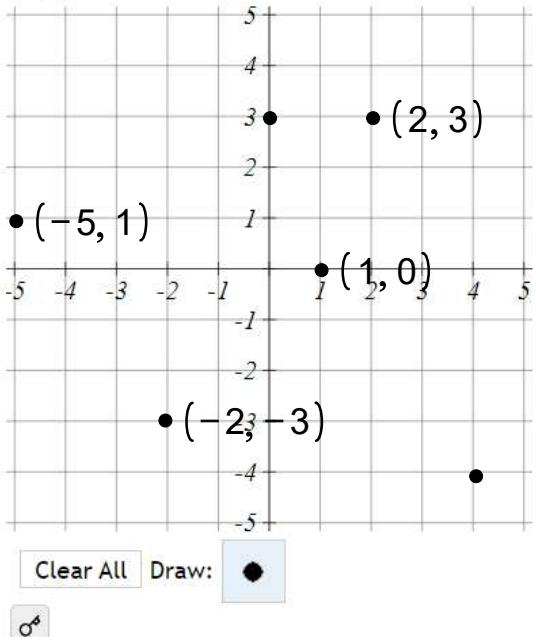
$(1, 0)$ ... 1 right, 0 up

$(4, -4)$ ... 4 *right*, 4 *down*

$(0, 3)$ ..

(x, y) ordered pair

going x left or right, y up or down..depending on whether x /y is positive or negative.

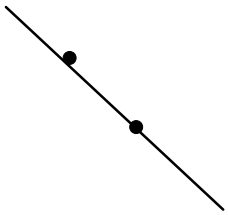


Clear All Draw:

2x+2y=6

x=0: $2\cdot 0+2y=6\rightarrow 2y=6\rightarrow y=3$

$y=0:\ 2x+2\cdot 0=6\rightarrow 2x=6\rightarrow x=3$



3 $(0,3)$

3 $(3,0)$

2nd 1st

example 2 of the above: $3x+4y=12$

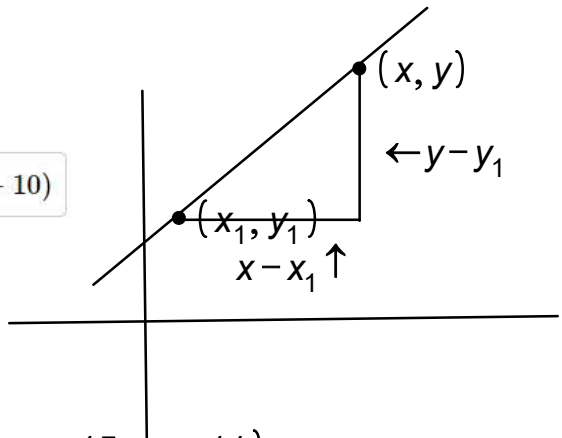
$y=0: 3x+4\cdot 0=12\rightarrow 3x=12\rightarrow x=12/3\rightarrow x=4 \xrightarrow{\text{point is}} (4,0) \Leftarrow$ mark in graph

x=0: $3\cdot 0+4y=12\rightarrow 4y=12\rightarrow y=12/4\rightarrow y=3 \xrightarrow{\text{point is}} (0,3) \Leftarrow$ mark this in graph

Once the points are marked, connect with a straight line. In the homework this means that we have to mark two dots first and then the line second.

Find the equation of the line through the points $(-15,11)$ and $(10,-9)$.

$y-11=-\frac{4}{5}(x+15)$ or $y+9=-\frac{4}{5}(x-10)$



$y-y_1=m(x-x_1)$

slope= $m=\frac{y-y_1}{x-x_1} \xrightarrow{\text{rearrange}} m(x-x_1)=y-y_1$

we don't have m but we can find it using $m=\frac{y_2-y_1}{x_2-x_1}$, $(x_1=-15, y_1=11)$

$(x_2=10, y_2=-9)$

⇐ choice is arbitrary..can switch the subscript labels

$slope=\frac{-9-11}{10-(-15)}=\frac{-20}{10+15}=\frac{-20}{25}=\frac{5(-4)}{5\cdot 5}=-\frac{4}{5}$ $(-4/5 \Leftarrow$ 5 right, 4 down$)$

now plug into formula: $y-11=-\frac{4}{5}(x--15), y_1=11, x_1=-15, m=-4/5$

$$y-11=-\frac{4}{5}(x+15)$$

could use the other point: $(10, -9)$

$y - -9 = -\frac{4}{5}(x - 10)$ replace y_1 with -9, x_1 with 10

$y + 9 = -\frac{4}{5}(x - 10) \Leftarrow$ equally acceptable form

other stuff: $y - y_1 = m(x - x_1) \Leftarrow$ point slope form

we have the form y=mx+b (m is slope, b=y intercept) , slope-intercept form

example : horizontal line equation through (1,2). $ax + by = c \Leftarrow$ general form of a line

horizontal line means m=0(slope is 0)

$y_1 = 2, x_1 = 1,$ m=0

$y - 2 = 0(x - 1)$

$y - 2 = 0$

$y = 2 \Leftarrow$ final answer

example: making point-slope form into y=mx+b form

made up information:

$(1, 2),\ m = -3$

$y - 2 = -3(x - 1) \Leftarrow$ repalce y_1 with 2, x_1 with 2, m with -3

$y - 2 = -3x - 3(-1) \Leftarrow$ distribute -3 to each term on RHS

$y - 2 = -3x + 3$ $(negative \cdot$ negative=positive$)$

$y - 2 + 2 = -3x + 3 + 2$ (add 2 to both sides)

$\approx$

$y = -3x + 5$ $(-2 + 2 = 0$ numbers whose sum is $0)$

numbers whose sum is 0, -2+2, are called additive inverses.

according to y=-3x+5, the slope is still -3!

the y intercept is +5.