ex1) Create a table and a graph from this equation in slope-intercept form.

x	y
-8	7
-4	6
0	5
4	4
8	3

$$m = -\frac{1}{4}$$

$$b = 5$$

slope-intercept equation:

$$y = -\frac{1}{4}x + 5$$

$$y = mx + b$$

Graph points: (-8,7), (-4,6), (0,5), (4,4), (8,3)
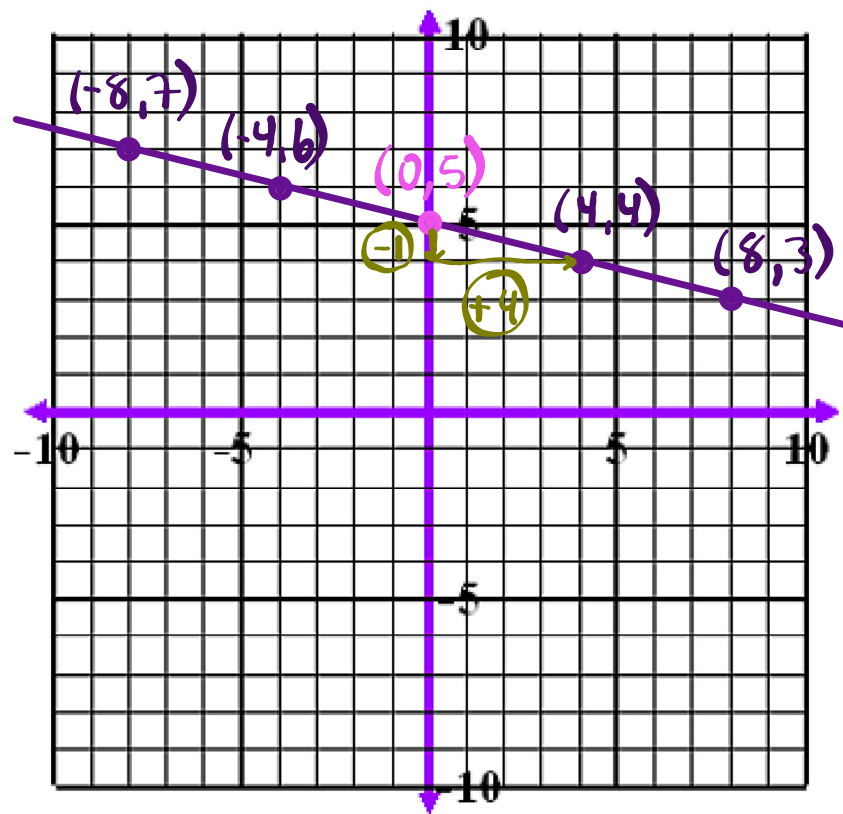
ex2) Create a table and an equation in point-slope form from the graph.

X	y
−1	−7
0	−2
1	3
2	8
3	13

(+1) / (+5) between rows

$$m = \frac{5}{1} \leftarrow \text{rise (increase y by 5)}$$
$$\leftarrow \text{run (increase x by 1)}$$
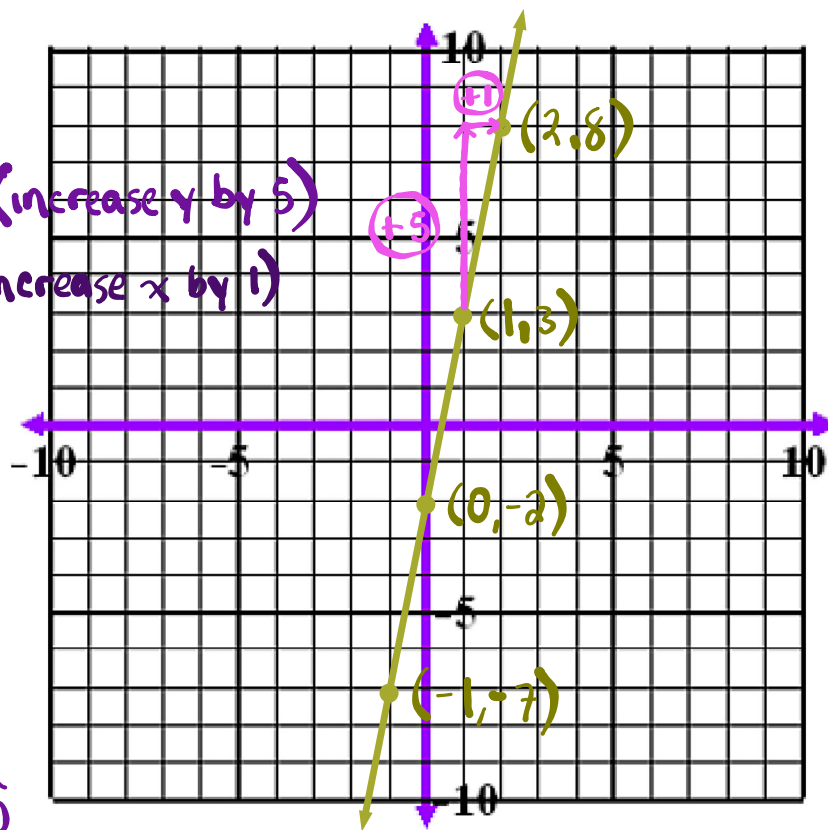
point-slope equation:

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

$$\boxed{y - 3 = 5(x - 1)}$$

If you choose a different point, you'll get a different point-slope equation.

$m = 5$
I'll choose point $(1,3)$.

Graph points: $(2,8)$, $(1,3)$, $(0,-2)$, $(-1,-7)$

ex3) Create a graph and an equation in standard form from the table.

x	y
3	4
-6	1
6	5
-3	2
9	6
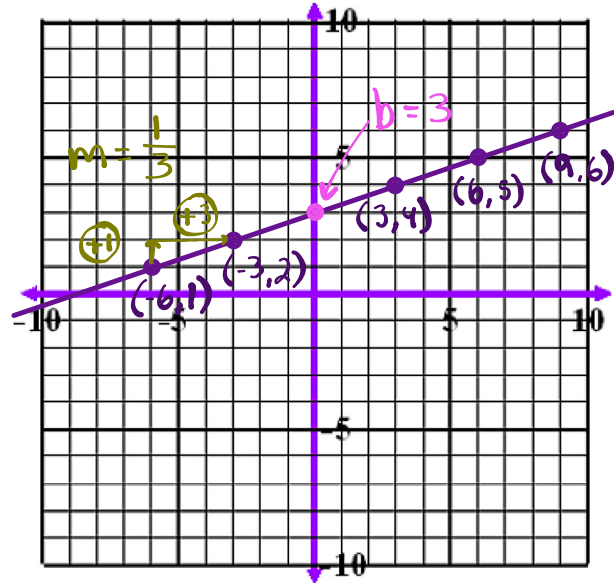
standard form equation:

First write the equation in slope-intercept form.

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

$y = mx + b$

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

Convert to standard form.

$y = \frac{1 \cdot 3}{3}x + 3 \cdot 3$

$3y = x + 9$

$-x \quad -x$

$-x^{(-1)} + 3y^{(-1)} = 9^{(-1)}$

$x - 3y = -9$

The Standard Form

Ax + By = C

1. No fractions allowed.
2. x and y terms must be alone on the left side of the equation.
3. x term must be first and positive.

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

(−6,1) (−3,2) (3,4) (6,5) (9,6)

ex4) Create a table and a graph from this equation in point-slope form.

x	y
-3	-10
2	-6
7	-2
12	2
17	6

(+5) for each x-step, (+4) for each y-step

$$m = \frac{4}{5}$$

← rise (increase y by 4)
← run (increase x by 5)
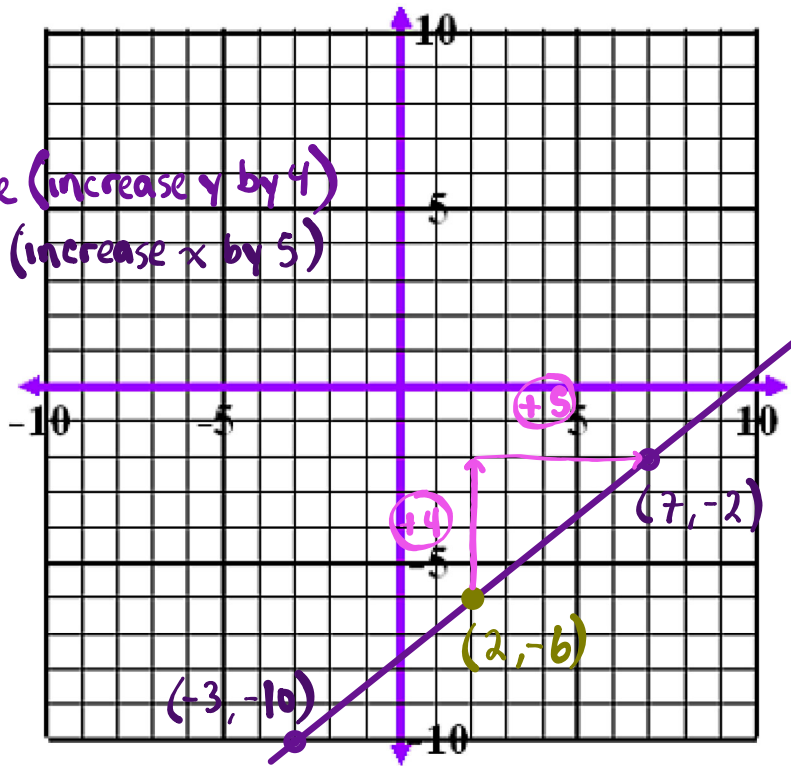
$$Y - Y_1 = m(x - x_1)$$

point-slope equation:

$$y + 6 = \frac{4}{5}(x - 2)$$

opposite of Y_1
M
opposite of x_1

point $(2, -6)$
x_1 y_1

Graph points: $(-3, -10)$, $(2, -6)$, $(7, -2)$