Review:

$$y = mx + b$$

m = slope b = y-int.

(m) **Slope:** $\frac{\text{rise}}{\text{run}}$ comes before x.

uphill = positive slope

downhill = negative slope

ufo $\frac{y_2 - y_1}{x_2 - x_1}$ y's / x's

(b) ***y*-intercept:** where the line crosses the y-axis.

Start with y-int. when graphing.

Identify the slope and *y*-intercept for the following equations.

Ex. 1: $y = 5x - 3$

$m = 5$

$b = -3$

Ex. 2: $y = \frac{1}{1}x + 2$

$m = 1$

$b = 2$

Graph the equation.

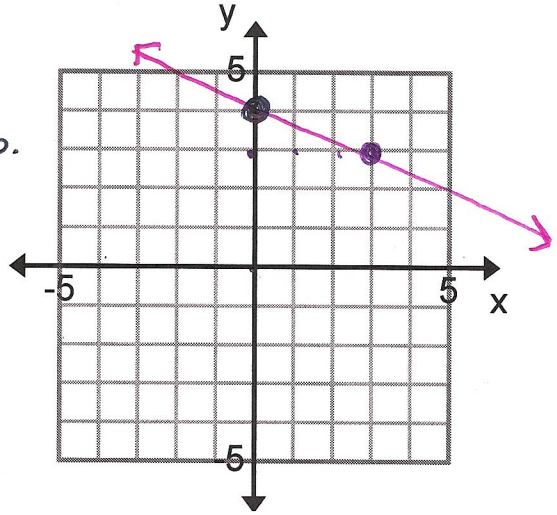
Ex. 3: $y = -\frac{1}{3}x + 4$

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

$b = 4$

① Graph b.

② use slope to graph another point.



Ex. 4: Write the equation of the line in <u>slope-intercept form</u> given the slope and one point. $y=mx+b$

$m=2$ and $(3,5)$

x y

$y=mx+b$

$5=2(3)+b$

$5=6+b$

$-6 \quad -6$

$-1=b$

$y=mx+b$

$y=2x-1$

Steps:

1. Identify x, y
2. use $y=mx+b$ & plug in m, x, y
3. solve for b.
4. write the equation, use m, b as #'s leave x, y as variables

Ex. 5: Write the equation of the line in slope-intercept form.

$m = 3$ and $(4,6)$

$y = mx + b$ $\quad x\ y$

$6 = 3(4) + b$

$6 = 12 + b$

$-12 \quad -12$

$-6 = b$

$y = mx + b$

$y = 3x - 6$

Ex. 6: Write the equation of the line in slope-intercept form.

$m = \frac{2}{3}$ and $(6,5)$ $\quad x\ y$

$5 = \frac{2}{3}(6) + b$

$5 = 4 + b$

$-4 \quad -4$

$1 = b$

$\frac{2}{3} \cdot \frac{6}{1} = \frac{12}{3}$

$= 4$

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

Ex. 7: Write the equation of the line in slope-intercept form.

$m = -\frac{1}{2}$ and $(-8,-3)$

x y

$-3 = -\frac{1}{2}(-8) + b$

$-3 = 4 + b$

$-4 \quad -4$

$-7 = b$

$y = -\frac{1}{2}x - 7$

Ex. 8: Write the equation of the line in slope-intercept form.

$m = 0$ and $(-2,4)$

x y

$4 = 0(-2) + b$

$4 = 0 + b$

$4 = b$

$y = mx + b$

$y = 0x + 4$

$y = 4$