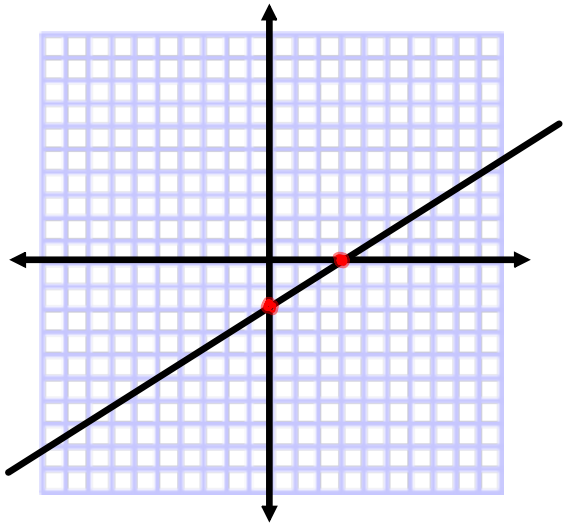
Reminders:

. Unit Test (Ch. 4 & 5 & 6.7) - Tuesday, 4/3

. Last day of the quarter is Thursday, 4/12

. Last day for make-up work (excused!) is Monday, 4/9

You now should be able to:
WRITE THE EQUATION OF A LINE



From an accurate graph

Find the y-intercept (b)
Count the slope (rise/run, then reduce to find m)
Write the equation in slope-intercept form

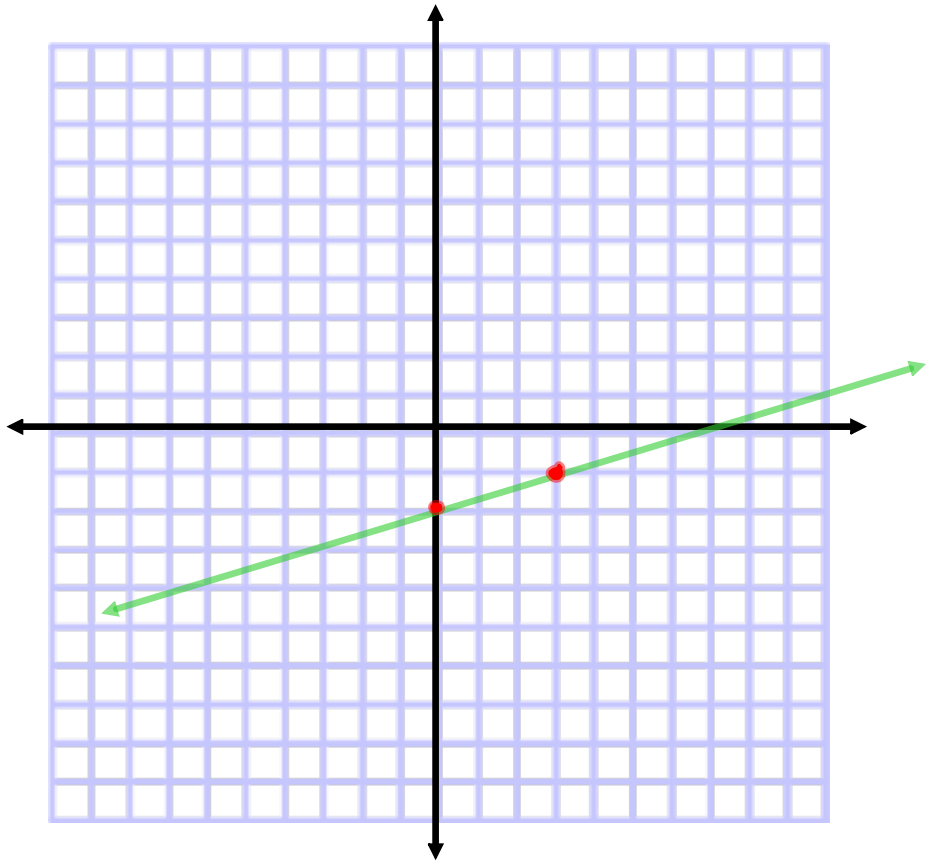
Given slope and y-intercept

Write the equation in slope-intercept form (you already have m and b!)

Given b, a point

Find the slope by using the slope equation (you have two points - (0,b) and the other point given in the problem
Write the equation in slope-intercept form

What is the equation?



The y-intercept is -2 (you can see it on the graph)

The slope is up 1, over 3 - so it's 1/3

That means the equation is:

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

Write the equations:

y-int: -5

Slope: $\frac{3}{2}$

we have the slope (m) and y-intercept already - so we just write the equation. It is:

$$y = \frac{3}{2}x - 5$$

y-int: -7,212.41625

Slope: $\frac{3.34243}{2.77473}$

we have the slope (m) and y-intercept for this one too! It's crazy looking but we write the equation just the same way ... it is:

$$y = \frac{3.34243}{2.77473}x - 7{,}212.41625$$

Write the equation:

(0, 7) (2,-3)

We have the y-intercept already - the point (0,7) is on the y-axis (graph it to see), so b = 7

We can find the slope by using the slope formula:

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

$$m = \frac{-3-7}{2-0} = \frac{-10}{2} = -5$$

Finally, we put m and b into the slope-intercept form equation:

$$y = -5x + 7$$

Finding the equation of a line given a point and the slope: $m=\frac{2}{3}$ (12, 3)

$y = mx + b$

$y = \frac{2}{3}x + b$ ← Substitute m into the slope-intercept equation

$3 = \frac{2}{3}(12) + b$

$3 = 8 + b$ ← Substitute the x- and y-values and solve for b

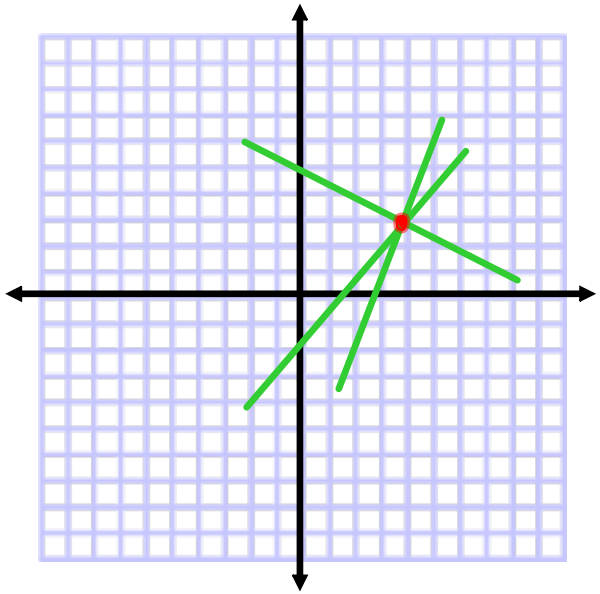
$-5 = b$

$y = \frac{2}{3}x - 5$ ← Replace m and b with the values you found

Given one point on a line, what's the equation?

(4,3)

We don't know! It takes two points to make a line ...



Finding the equation of a line given two points on the line: (-2, 5) and (2, -1)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1-5}{2--2} = \frac{-6}{4} = \frac{-3}{2}$$ ← Find m using the slope formula

$$y = \frac{-3}{2}x + b$$ ← Substitute m into the slope-intercept equation

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

← Substitute either set of x- and y-values and solve for b

$$y = \frac{-3}{2}x + 2$$ ← Replace m and b with the values you found

Need more help? Check your book (5.2) - or Khan Academy

http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/v/equation-of-a-line-2

http://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/v/equation-of-a-line-3

Write an equation of the line that passes through the given point and has slope *m*.

1. $(-1, 6); m = 5$

2. $(10, 3); m = -2$

3. $(2, -3); m = 7$

Write an equation of the line that passes through the given points.

10. $(-10, 7), (5, -3)$ **11.** $(-5, -3), (12, 17.4)$ **12.** $(-8, 84), (5, -46)$

Homework: p. 296 3-39 (every 3rd), 50, 52