Reminders:

. Skills Test over Equations - Friday, 10/21

. Unit Test (Ch. 4 & 5 & 6.7) - Thursday, 10/27

. Last day of the quarter is Thursday, 11/10

. Last day for make-up work (excused!) is Monday, 11/14

Homework review (5.1):

(46) 3.99 for enlg.
1.49 per order
8 enlargements

x = # of enlg.
y = $

$y = 3.99x + 1.49$

$f(x) = 3.99x + 1.49$

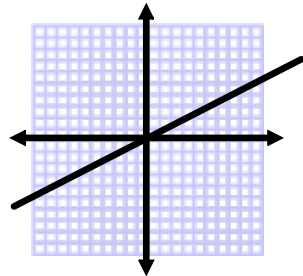$f(8) = 3.99(8) + 1.49$

$\qquad = 31.92 + 1.49$

$\qquad = \$33.41$

$4(8) + 1.50$
$32 + 1.50$
$\boxed{33.50}$

$\begin{array}{r} {}^{7}\ {}^{7}\ \\ 3.99 \\ \underline{\times \quad 8} \\ 31.92 \\ 1.49 \\ \hline 33.41 \end{array}$

You now should be able to:

WRITE THE EQUATION OF A LINE

IF YOU'RE GIVEN:

Accurate graph

$m = \frac{2}{5}$ $b = -2$ Given m, b

Slope $= 4$ y-int. $= 15$

$b = 6$ $(2, 5)$ Given b, a point
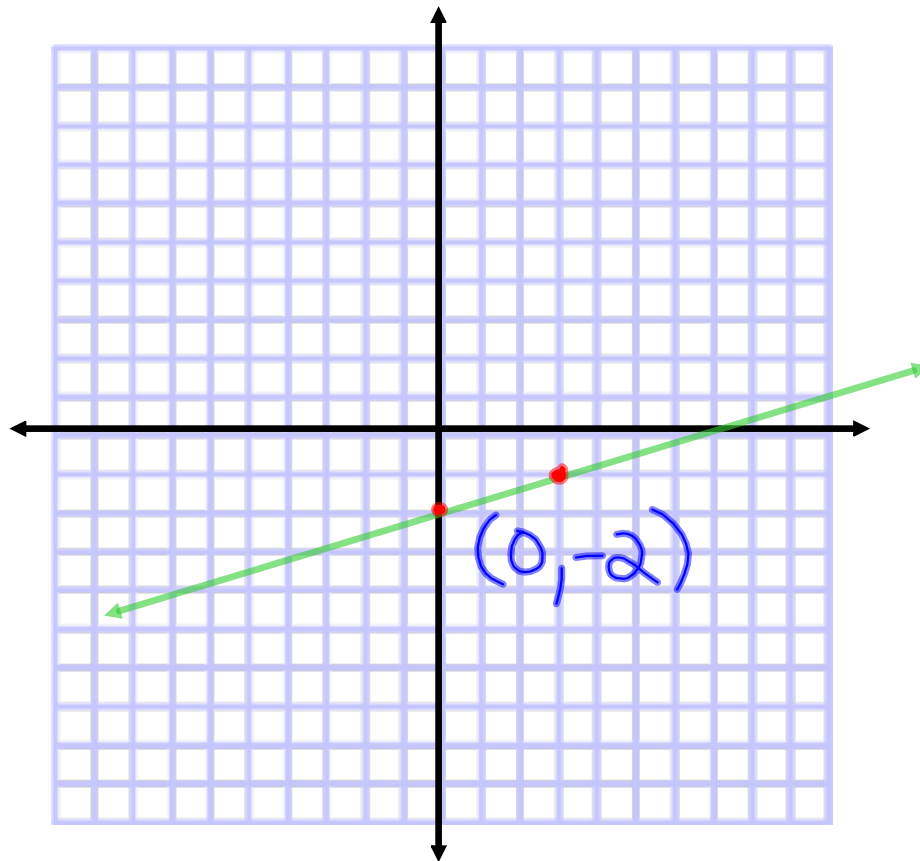
y-int. $= -1$ $(1, 3)$

$(0, 4)$ $(6, 2)$

What is the equation?

$$b = -2$$

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{1}{3}$$

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

(0, -2)

Write the equations:

(b) (m)

y-int: -5

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

y-int: -7,212.41625

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

$y = mx + b$

$y = \dfrac{3}{2}x + {}^-5$

$y = \dfrac{3.34243}{2.77473}x - 7212.41625$

Write the equation:
(0, 7) (2,-3)
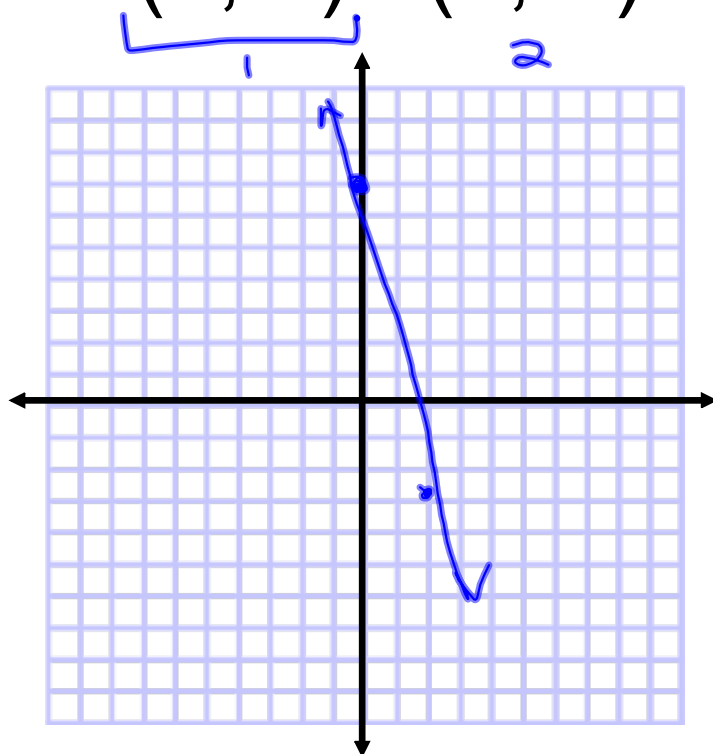
$$y = -5x + 7 \quad \text{K.C.}$$
$$y = -2x + 7 \quad \text{M.S.}$$

$$y = mx + 7$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-3 + 7}{2 - 0}$$

$$= \frac{-10}{2} = -5$$

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

$x \quad y$

$y = mx + b$

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

$3 = \dfrac{2}{3}(\overset{4}{\cancel{12}}) + b$ ← Substitute the x- and y- values and solve for b

$3 = 8 + b \qquad b = -5$
$\underline{-8 \quad -8}$

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

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

(4,3)
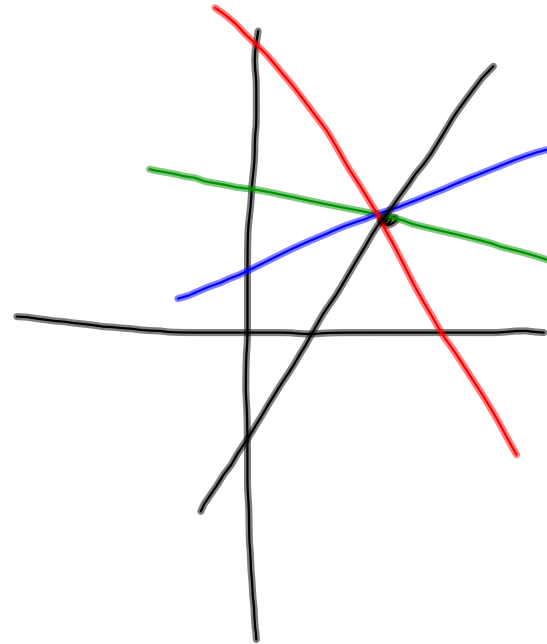
Finding the equation of a line given two points on the line: (-2, 5) and (2, -1)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 + -5}{2 + 2} = \frac{-6}{4} = -\frac{3}{2}$$

Find m using the slope formula

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

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

Substitute m into the slope-intercept equation

$$5 = \frac{6}{2} + b$$

$$5 = 3 + b$$

$$-3 \quad -3$$

$$2 = b$$

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

$$-1 = -3 + b \qquad b = 2$$

$$+3 \qquad +3$$

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

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

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

$y = 5x + 11$

2. $(\overset{x}{10}, \overset{y}{3})$; $m = -2$

$y = -2x + 23$

$y = -2x + b$

$3 = -2(10) + b$

$3 = -20 + b$

$+20 \quad +20$

$23 = b$

3. $(\overset{x}{2}, \overset{y}{-3})$; $m = 7$

$y = 7x - 17$

$y = 7x + b$

$-3 = 7(2) + b$

$-3 = 14 + b$

$-14 \quad -14$

$-17 = b$

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

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

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

$m = \dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{-3 + 7}{5 + ^+ 10}$

$m = \dfrac{-10}{15} = \dfrac{-2}{3}$

$y = \dfrac{-2}{3}x + b$

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

$-3 = \dfrac{-10}{3} + b$

$\dfrac{+10}{3} \qquad +\dfrac{10}{3}$

$\dfrac{-3 \cdot 3}{1 \cdot 3} + \dfrac{10}{3} = b$

$\dfrac{-9}{3} + \dfrac{10}{3} = b = \dfrac{-1}{3}$

$y = \dfrac{20.4}{17}x + 3$

$y = \dfrac{204}{170}x + 3$

$= \dfrac{102}{85}x + 3$

$\boxed{y = \dfrac{6}{5}x + 3}$

$-3 = \dfrac{6}{5}(-8) + 3$

$-3 = -6 + 3$

$-3 = -3 \checkmark$

$17.4 = \dfrac{6}{5}(12) + 3$

$17.4 = 14.4 + 3$

$17.4 = 17.4 \checkmark$

11

Oil Changes You are scheduled to start your job at an oil change shop 2 hours after the shop opens. Two hours after you start, a total of 11 cars have had their oil changed since the shop opened. Three hours later, a total of 14 cars have had their oil changed. At what rate are cars getting their oil changed since you started working? How many cars had their oil changed before you started work?

cars

14

11
9

2hrs. 4hrs 7hrs

time
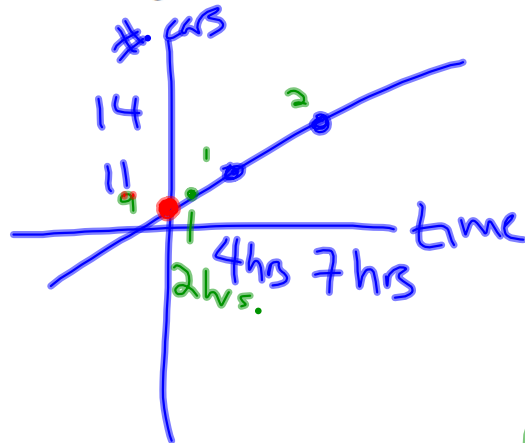
slope

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{14 - 11}{7 - 4} = \frac{3}{3} = 1$$

1 car/hr

9 cars done

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