Math 125 Quiz 1 Spring 2017 Name: _____

TA: Reynolds Trifunovski Zheng **Discussion Time** 8 9 10 11

1. Given the line $4x - 3y = 24$, find:

$-3y = -4x + 24$

$y = \frac{4}{3}x - 8$ +1

(a) The x-intercept.

$0 = \frac{4}{3}x - 8$

$\frac{4}{3}x = 8$

$x = 6$, $(6, 0)$ +1.5

(b) The y-intercept.

$y = 0 - 8 = -8$ +1.5

$(0, -8)$

(c) The slope.

$m = \frac{4}{3}$ +1

2. A car lease requires a down payment and a monthly cost. The cost for having the car for 6 months is \$ 3,500 and the cost for having the car 12 months is \$ 5,000. Find the equation of the line expressing the total cost of leasing the car as a function of time. Show work to receive full credit.

$m = \frac{5000 - 3500}{12 - 6} = \frac{1500}{6} = \frac{500}{2} = 250$ +2

+3

$y - 3500 = 250(x - 6)$

$y - 3500 = 250x - 1500$

$y = 250x + 2000$

3. (a) Find the point where the lines $y = 2x + 3$ and $y = 5x - 6$ intersect.

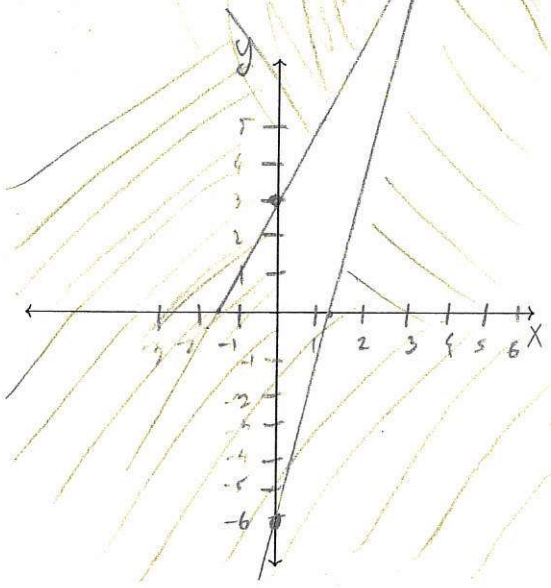
$\begin{cases} y = 2x + 3 \\ y = 5x - 6 \end{cases}$ $\begin{cases} y = 2x + 3 \\ 0 = 3x - 9 \end{cases}$ +2

$\begin{cases} y = 9 \\ x = 3 \end{cases}$

(b) Graph the feasible set for the following system of linear inequalities.

$$\begin{cases} y \leq 2x + 3 \\ y \geq 5x - 6 \\ x \geq 0 \\ y \geq 0 \end{cases}$$

$(0, 3), (-\frac{3}{2}, 0)$
$(0, -6), (\frac{6}{5}, 0)$ +3



+3

4. You are given the points $(1, 2)$, $(2, 5)$, and $(6, 10)$.

(a) Find the equation of the regression line through these points.

$y = 1.5x + 1.167$ +3

(b) What y value would the regression line predict for an x value of 3?

$y = 1.5 \cdot 3 + 1.167 = 5.667$ +2