Math 253MW, Spring 2010
Gonzalez

+10 pts

Name Key

Quiz #3: Take-Home

Directions: Please show all your work since partial credit is given. Answers without the necessary work will receive no credit. The quiz is due no later than **Monday, February 8, at 4:31 pm.** And remember, have fun!

1. Let $L(x)$ be a linear function such that the points $(3,2)$ and $(-5,6)$ lie on its graph.

[+2] **a)** Find the slope of $L(x)$. $\boxed{m = \frac{-1}{2}}$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6-2}{-5-3} = \frac{4}{-8} = \frac{-1}{2}$$

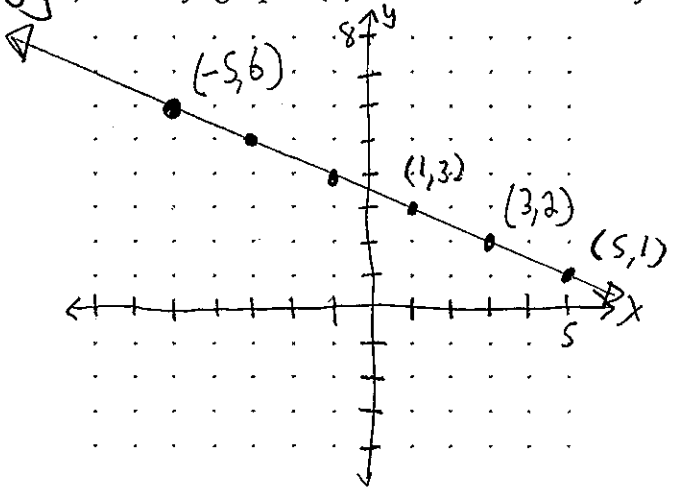
[+2] **b)** F ind an equation for $L(x)$. $\boxed{L(x) = \frac{-1}{2}x + \frac{7}{2}}$

$y = \frac{-1}{2}x + b$, using $(3,2)$

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

$2 = \frac{-3}{2} + b \longrightarrow b = 2 + \frac{3}{2} = \frac{7}{2}$

[+2] **c)** Finally, graph $L(x)$. Make sure to label your graph completely.



+6

[+4]

2. Find the equation of the line that contains the point $(2,-5)$ and whose graph is perpendicular to the line $5x-2y=8$.

$y = \frac{-2}{5}x - \frac{21}{5}$ +2 for the b-value and answer.

$5x-2y=8$

$-2y=-5x+8$

$y=\frac{5}{2}x-4$

$\downarrow$

perpendicular slope $m=\frac{-2}{5}$ +2 for the slope

So $y=\frac{-2}{5}x+b$

Using $(2,-5)$,

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

$-5=\frac{-4}{5}+b$

$-5+\frac{4}{5}=b$

$-\frac{25}{5}+\frac{4}{5}=b$

$-\frac{21}{5}=b$

+4