Pd. 7

Th 9/1/16
Pre Calc

(//) Parallel & Perpendicular (⊥) Review

- Two lines are // if their slopes are the same and y-intercepts are different
- Two lines are ⊥ if slopes are opposite-reciprocals

m	opp	recip
$\frac{1}{2}$	$-\frac{1}{2}$	-2
-3	3	$\frac{1}{3}$

I. Showing that 2 lines are //

$L_1: 2x + 3y = 6$

$-2x \quad\quad -2x$

$\frac{3y}{3} = \frac{-2x}{3} + \frac{6}{3}$

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

$L_2: 4x + 6y = 0$

$-4x \quad\quad -4x$

$\frac{6y}{6} = \frac{-4x}{6}$

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

Yes, L_1 and L_2 are //

II. Finding a line that is // to a given line

eqn = equation

ex) find an eqn for the line that contains the pnt $(2, -3)$ (x_1, y_1) and is // to the line $2x + y = 6$

to get slope: $2x + y = 6$

$-2x \quad -2x$

$y = -2x + 6$; $m = -2$

use pnt-slope form

$y - y_1 = m(x - x_1)$

$y - (-3) = -2(x - 2)$

$y + 3 = -2(x - 2)$

III. Finding the eqn of a line ⊥ to a given line

ex) find eqn of the line that contains the pnt $(1, -2)$ (x_1, y_1) and is ⊥ to the line $x + 3y = 6$. Graph the two lines.

① to find slope: $x + 3y = 6$

$-x \quad -x$

$\frac{3y}{3} = \frac{6 - x}{3}$

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

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

② pnt-slope form

$y - y_1 = m(x - x_1)$

$y - (-2) = 3(x - 1)$

$y + 2 = 3(x - 1)$

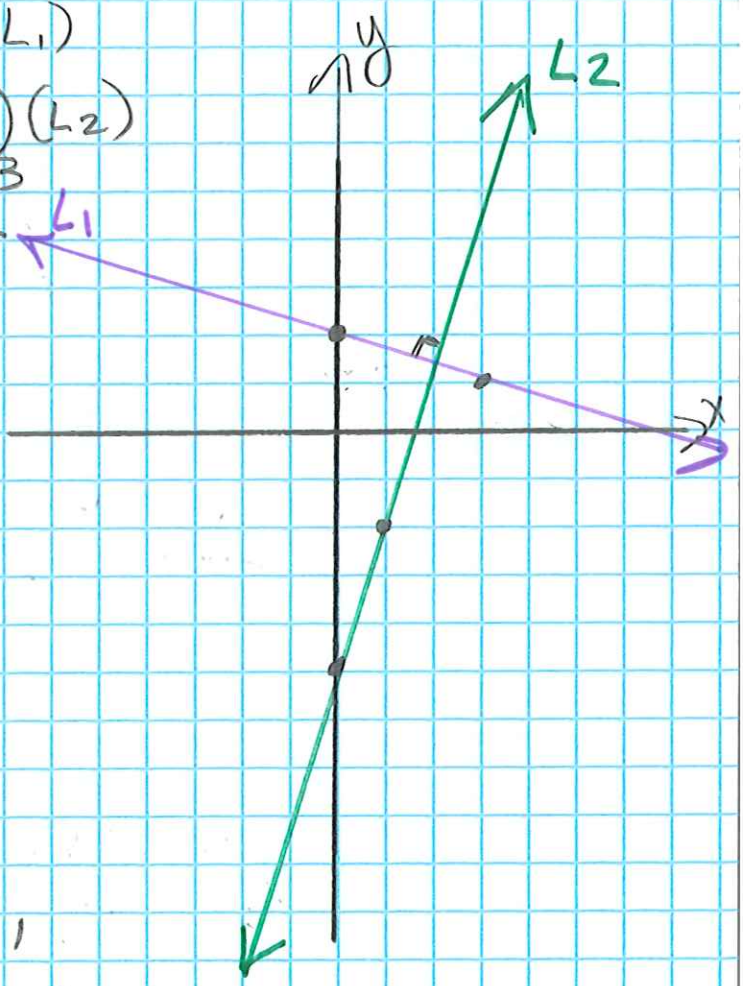
graph: $y = 2 - \frac{1}{3}x$ (L_1)

$y + 2 = 3(x - 1)$ (L_2)

$y + 2 = 3x - 3$

$-2 \quad -2$

$y = 3x - 5$



HW: P3: 64, 66, 68, 72, 78, 80, 82, 92-98 even