7.4 Parallel and Perpendicular Lines

using slope-intercept form, write the equation of each line.

$L_1$:

$L_2$:

If lines are parallel they have the same slope and different y-intercepts.

Ex! A line is parallel to $2x - y + 4 = 0$, and goes through $(1, -6)$. Write the equation in general form.

1. Get the slope, it's the same as the slope for $2x - y + 4 = 0$
   Re-write into slope-intercept form:
   
   $$2x - y + 4 = 0$$
   $$+y$$
   $$\underline{y = 2x + 4}$$
   
   The slope is $2$.
   A point is $(1, -6)$?

   Use the slope point equation:
   
   $$y - (-6) = 2(x - 1)$$
   $$y + 6 = 2x - 2$$
   
   For general form move everything to where $x$ is positive.

   $$0 = 2x - y - 6 - 2$$
   $$2x - y - 8 = 0$$

   Do this. A line containing the point $(5, -6)$ is parallel to the line $3x + y + 3 = 0$. Write the equation in:
   
   1. slope-point form
   2. slope-intercept form
General form.