MAT 1340 Week 2 Written Assignment
Covers Section 1.4 – 1.6

Be sure to follow College Algebra formatting guidelines in your work. They're the same for us as they are for College Algebra, except we're "2410" and not "1340," so "2410" in the top left corner, not "1340."

1. Consider the line $y = 5x - 11$.
   a. Give the slope of the line.

   b. Give the *y*-intercept of the line as an ordered $(x, y)-$pair, where *x* is going to be 0, of course. I don't care much for giving the *y*-intercept as just a number.

   c. Any line parallel to this line has what slope?

   d. Any line perpendicular to this lane has what slope?

2. Graph the line $3x + 4y = 24$ by the intercept method. What is its slope?

3. If you're doing written work for *me*, and I ask you to find the equation of a line satisfying some condition(s), I'm always looking for *point-slope form*, by which I mean $y = m(x - x_1) + y_1$. Your *book* and *WebAssign* always do point-slope this way: $y - y_1 = m(x - x_1)$, which I despise. It's *much better* to add the y_1 to both sides, so that the *y* is all by itself on the left-hand-side.

   This is more suggestive of how we maneuver along a line. You start at the height y_1, at the point (x_1, y_1) and each unit step to the right from x_1, you move up or down *m* units from y_1, depending on whether *m* is positive (up) or negative (down).

   a. Find an equation of the line through the points $(3,2)$ and $(-5,6)$. Give it in *my* version of point-slope form. Don't bother simplifying any further. (Do all of these this way.)

   b. Find an equation of the line thru $(4,11)$ that's parallel to the line in part a.

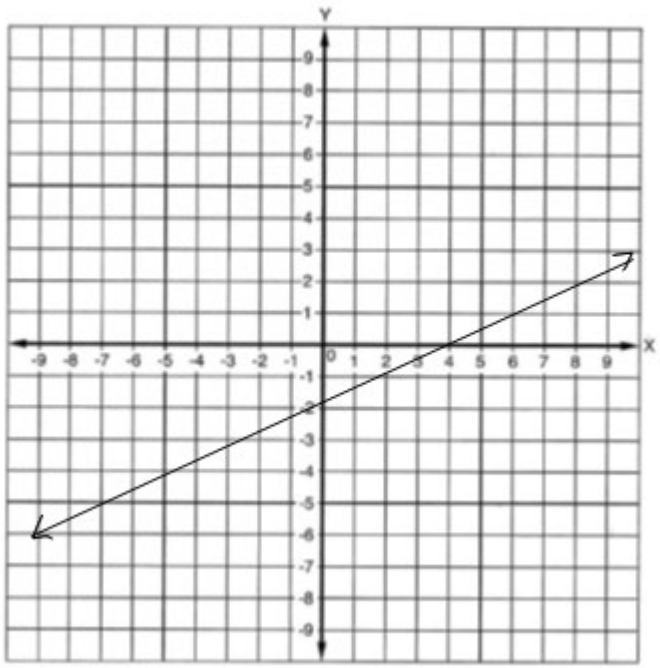
   c. Find an equation of the line thru $(4,11)$ that's *perpendicular* to the line in part a.

4. Sketch the "degenerate" lines. Label the intercept(s).

   a. $x = 7$

   b. $y = -3$

5. Find an equation of the line that's graphed on the right.



6. Without solving, tell me whether the solutions are real or imaginary, by computing the discriminant of each. If the solutions are real, tell me whether they're rational or irrational.

   a. $2x^2+9x-35=0$

   b. $x^2-6x+12=0$

   c. $x^2-6x-12=0$

   d. $x^2-6x+9=0$

   Always compute the discriminant *before* plugging into the quadratic formula!!! Know what you're looking at *and* save time evaluating the formula in the sequel:

7. Solve by completing the square:

   a. $x^2-6x-12=0$

   b. $x^2-6x+12=0$

   c. $2x^2+9x-35=0$

8. Solve by factoring.

   a. $2x^2+9x-35=0$

   b. $70x^2+33x-324=0$ This one is a toughie. I suggest trying the Sledgehammer Method Video or maybe just the Sledgehammer Method Notes, to reverse-engineer how this thing factors by finding its zeros with the quadratic formula.