Math 111 End of Week 6 Newsletter

UPCOMING SCHEDULE:
Friday (Today): Section 1.5/4.1: Solving Linear Systems and Graphing Inequalities
Monday: Section 4.1/4.2: Intro to Linear Programming. (Examples from lecture pack)
Tuesday: Test Prep on 2.1, 2.2, and 2.3 and Homework Q & A (Ask 1.5 and 4.1 questions!)
Wednesday: NO CLASS: HOLIDAY – NOTE: MSC is closed!!!
Thursday: Activity 6: An activity showing the full method of linear programming.
Friday: Section 4.2: Full Linear Programming Examples (More examples)

NEXT WEEK HW SCHEDULE:
Closing Tuesday: Section 2.3 (part 2)
Closing next Thursday: Section 1.5 and Section 4.1

WEEK 6 HOMEWORK STATS:
Section 2.1 HW: Median Score = 100%, Median Time Browser Open = 50 minutes
Section 2.2 HW: Median Score = 100%, Median Time Browser Open = 2 hours 10 minutes
Section 2.3(part 1) HW: Median Score = 100%, Median Time Browser Open = 1 hours 24 minutes
I knew this was a big week of homework (I warned about it).   I was happily surprise that overall it didn't
really take any significant more time than other weeks (the amount of time it took was about equal to
the first week). Thus, most of you did not find this homework to be signicantly more time consuming
than any other week, so that is a good sign.

ACTIVITIES:
Activity 5 summarized some important facts from 2.3. I hope you found that helpful.
The Activity 5 solutions are online here:
http://www.math.washington.edu/~aloveles/Math111Fall2015/Activity05key.pdf

MATERIAL NOTES:
1. We have finished the big discussion on algebra, quadratics, vertex, and functional notation. Now
    your job is to practice putting those skills to use. See my postings below to help you organize your
    thinking.
2. We are about to introduce a method for studying problems where you are selling more than one
    product (we will focus on two products). The method is called linear programming. Before we can
    start linear programming we need two skills:
        Finding intersections of linear functions. (This is section 1.5)
        Graphing inequalities. (This is section 4.1).
    Once we have these skills, we can discuss the so-called linear programming method (section 4.2).

NEW POSTINGS:
Here are some new postings that should help you now and this next week.
1. **Summary and Organization for How to do all Homework Problems from 2.2 and 2.3**:
http://www.math.washington.edu/~aloveles/Math111Fall2015/Chapter2ProblemOverview.pdf
2. **Additional Fully Worked Out Examples From 1.5 and 4.1 (skills review)**:
Read this before attempting the 1.5 and 4.1 homework sets!!!
http://www.math.washington.edu/~aloveles/Math111Fall2015/Section1.5&4.1Review.pdf
3. **Discussion of the full Linear Programming Method (from 4.2) with full examples**:
http://www.math.washington.edu/~aloveles/Math111Fall2014/Section4.2Review.pdf
(You won't need the 4.2 review until the end of next week, but I thought you might like to read ahead to
get an idea of the full process that we will be discussing next week)

IMPORTANT HOMEWORK HINTS FOR NEXT WEEK: Section 1.5 and 4.1 should be very quick. But let me make a few comments based on questions from last year.

Hints for Section 1.5 Homework: Last year, I got two recurring questions about 1.5. Here are some comments pertaining to these issues:

A) **Please don't use the "watch it" in section 1.5**. Last year I had several dozen students asking me to explain the various methods that webassign showed to solve the problem. In many of the problems the "watch it" uses ways to solve the systems that are way too complicated. Instead do as I will show you in class. For most problems in this class, the easiest way to solve a system is to use substitution (easiest in the sense that, it requires no cleverness).
That is, solve for one variable in one of the equations and substitute into the other equation. This will ALWAYS work! So you don't need other methods. If you happen to know how to do other methods that is fine too, but if you can do substitution comfortably, then go ahead and use it. You can see two examples on the posted 1.5 review sheet.

B) **SECTION 1.5 / PROBLEM 6**: The wording is a little different than the other problems, so let me clarify. *You need to compute the total mixed bag cost before you start the problem*. If the price is $3.40 per pound for the mixed bag and it is a total of 70 pounds, then the total money is 3.40*70 = $238.
You are then going to set up equations very much like you did in the other problems. Your set up will look something like: $x + y = 70$ and $2.6x + 5.4y = 238$.
(Your numbers will be different than mine).

Hints for Section 4.1 Homework: This section seemed to go well for most students last year. Once I discuss this section in class, this should be quick to do. But there were a few technical issues last year so let me say a few things to prevent some headache:

A) **Choose solid lines for all your lines** (no rays, no dotted lines, no segment... use only solid lines which are the ones that have arrows in both directions in the menu). And only plot the lines (don't plot points unless it asks you to).

B) **Make sure to graph <u>ALL</u> the lines**. For example if you have
$$2x + 5y <= 10, \ x + y \ <= 6, x >= 0, y >= 0$$
Then **you need to graph all four lines**:
   (i) $2x + 5y = 10$, which is *a line through (0,2) and (5,0).*
   (ii) $x + y = 6$, which is *a line through (0,6) and (6,0).*
   (iii) $x = 0$, which is the y-axis (*it goes through (0,0) and (0,1)*).
   (iv) $y = 0$, which is the x-axis (*it goes through (0,0) and (1,0)*).

C) **Then shade the correct region**. In the example above, (0,0) works in both x + 5y<=10 and x + y <=6.
So make sure you are shading the overlapping region on the "origin" side of these lines. In the example above you would plot four solid lines, then click the region to shade and that is all you would do (plot nothing else!).

D) **Make sure you don't get the x and y flipped!**

E) **When you are finding an intersection, look at the graph**! If you are intersecting two lines, then you should be working with the equations for those two lines.

F) **If you make a mistake (plotting incorrect lines or plotting extra points or doing anything you didn't need to do in the graph or if you get a red X), then click "Clear all"**. And then redraw the correct lines.

VERY IMPORTANT: In brief, for the 4.1 problems you will do the following:
 i) Click on the Solid Extended Line button for all lines (NOT line segments, NOT points, NOT rays)
 ii) Type in the points for your line (in the boxes provided after you click on the line button)
 iii) Do this again for all your lines.
 iv) Shade the region. That is, click the shade button and click in the desired region.

OLD POSTINGS:

If you missed the practice and review sheets from last week, here they are again**:**

- **For more practice with 2.3 (applications) please check out the 6 old exam practice problems (with full detailed solutions) here:**
  http://www.math.washington.edu/~aloveles/Math111Fall2015/Section2.3Review.pdf
- **For more practice with 2.2 (functional notation) please check out the practice problems (with full detailed solutions) here:**
  http://www.math.washington.edu/~aloveles/Math111Fall2015/Section2.2Review.pdf
- **For more practice with 2.1 (using the vertex formula and the quadratic formula) please check out the practice problems (with full detailed solutions) here**:
  http://www.math.washington.edu/~aloveles/Math111Fall2015/Section2.1Review.pdf

OLD EXAMS:

Here are some old exam questions that pertain to sections 2.1, 2.2, and 2.3:

Problem 1 from:
http://www.math.washington.edu/~m111/Midterm2/win14ExamIIostroff.pdf

Problems 3 and 4 from:
http://www.math.washington.edu/~m111/Midterm2/aut13ExamIInichifor.pdf

Problems 1 and 2 from:
http://www.math.washington.edu/~m111/Midterm2/sum13ExamIItaggart.pdf

And you can find many more. Almost all old second midterms have at least two pages devoted to questions from 2.1, 2.2, and 2.3.

Okay, if you find something helpful here, please advertise to your classmates. I want these materials to be used.

Dr. Andy Loveless