Math 125 End of Week 3 Newsletter

UPCOMING SCHEDULE:
Friday: Section 6.3 (Volumes of Revolution: Cylindrical Shells)
Monday: Section 6.2/6.3 Review and general exam 1 review
Tuesday: Homework discussion and test prep (bring lots of homework and exam questions!)
Wednesday: Exam 1 Review (bring questions, you are welcome to attend both my lectures)
Thursday: **Midterm 1!**
Friday: Section 6.3 (Volumes of Revolution: Cylindrical Shells)

Remember:
Worksheet 2 solutions are here: http://www.math.washington.edu/~m125/outline2.php
Worksheet 3 solutions are here: http://www.math.washington.edu/~m125/outline3.php
Worksheet 4 is here: http://www.math.washington.edu/~m125/outline4.php
(you will not do worksheet 4 in quiz section, but it is just more practice with volumes of revolution, so if you are looking for more practice, check it out)

HOMEWORK:
  Closing Wednesday at 11:00pm: HW_3A, HW_3B, HW_3C (These cover 6.1, 6.2, and 6.3)
Important Note: You need to finish 3A, 3B, and 3C well before the closing date (I suggest by Sunday). You are definitely expected to know this material for the exam.
  HW_2A: median score = 100%, median time students had browser open to assignment =   84 minutes
  HW_2B: median score = 100%, median time students had browser open to assignment =   77 minutes
  HW_2C: median score = 100%, median time students had browser open to assignment = 141 minutes

HOMEWORK COMMENTS AND HINTS:
On HW_3A: Problem 8: In part (b), start by <u>drawing an accurate picture</u> of y = 1/x^2 on the interval x = 1 to x = 4. Then draw a horizontal line that appears to cut the region in half (note that it will be above y = 1/16) and label it y = b. Now set up an integral and find when the area you get is half, then solve for *b*.

On HW_3B: On 9 and 10, start by drawing a 2D region that would give the solid in question by rotating.
In 9, you will draw a circle and give the equation for a circle. In 10, you will draw two circles and you'll start by finding an intersection. You'll have to think about these a bit, so make sure to attempt them early and ask about them in quiz section, in the MSC, in CLUE, or in office hours.

On HW_2C: On 10, you'll have to do quite a bit of set up, but once you have it set up you will end up with an integral that you can split up. One of the integrals you will get after you split up the problem is:

$$\int_{-r}^{r} \sqrt{r^2 - x^2}\,dx$$

We currently do not have any algebraic methods for finding this integral (we will in section 7.3). BUT you don't need algebraic methods, if you draw the picture that goes with this integral you realize it is exactly half the region bounded by a circle with radius *r* which you should know has area ½ π r^2. So use

$$\int_{-r}^{r} \sqrt{r^2 - x^2}\,dx = \frac{1}{2}\pi\,r^2.$$

That will save you a lot of headache.

NEW POSTINGS
Here, again, is the course website: http://www.math.washington.edu/~aloveles/Math125Spring2016/index.html
There are several new postings:

1. **Overview of 6.1, 6.2, and 6.3** (full summary of areas and volumes):
    http://www.math.washington.edu/~aloveles/Math125Spring2016/Chapter6.pdf

2. Remember that **lecture materials are posted here**:
    http://www.math.washington.edu/~aloveles/Math125Spring2016/lecture.html
In particular, **check out the lecture materials for section 6.3 which contain full step-by-step guides for how to do any volume problem** (it also compares shells and disc/washer and tells you how to see when to use which one). Please check this out here:
    http://www.math.washington.edu/~aloveles/Math125Spring2016/6-3%20Overheads%20(Landscape).pdf

3. **Quick Overview for Exam 1**:
    http://www.math.washington.edu/~aloveles/Math125Spring2016/Exam1Review.pdf

4. **An old u-substitution quiz I gave that contains "harder" substitution problems (solutions included):**
    http://www.math.washington.edu/~aloveles/ArchivedMaterials/Math125/u-SubstitutionQuizSolutions.pdf

OLD EXAMS:
The math departmental exam archive is here: http://www.math.washington.edu/~m125/Quizzes/Q4.php
My personal exam archive is here:
    http://www.math.washington.edu/~aloveles/Math125Spring2016/LovelessExamArchive.html

Here are some targeted practice problems from old exams on the current material:

for practice using Section 6.1 material:
Area between curves
Problem 3a: http://www.math.washington.edu/~m125/Quizzes/week4/mid1a.pdf
Problem 5:   http://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1.pdf
Problem 4:   http://www.math.washington.edu/~m125/Quizzes/week4/aut15_pollack_1.pdf
Problem 5a: http://www.math.washington.edu/~aloveles/Math125Spring2016/w15m125e1.pdf
Problem 4:   http://www.math.washington.edu/~aloveles/Math125Spring2016/m125sp06e1.pdf
Problem 2:   http://www.math.washington.edu/~m125/Quizzes/week4/win16_ostroff_1.pdf
Problem 5:   http://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1h.pdf

for practice using Section 6.2 & 6.3 material (Volumes!):
Problem 3b: http://www.math.washington.edu/~m125/Quizzes/week4/mid1a.pdf
Problem 6:   http://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1.pdf
Problem 5:   http://www.math.washington.edu/~m125/Quizzes/week4/win13_mid1.pdf
Problem 6:   http://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1h.pdf
Problem 5:   http://www.math.washington.edu/~m125/Quizzes/week4/aut15_pollack_1.pdf
Problem 5b: http://www.math.washington.edu/~aloveles/Math125Spring2016/w15m125e1.pdf
Problem 4:   http://www.math.washington.edu/~aloveles/Math125Spring2016/w13m125he1.pdf
Problem 4:   http://www.math.washington.edu/~m125/Quizzes/week4/win16_bekyel_1.pdf
Problem 4,5:   http://www.math.washington.edu/~m125/Quizzes/week4/mid1b.pdf

Important note:
All my personal exams have full detailed solutions; and I have just posted several more. Not all the old exams in the math department exam archive have full solutions.   A couple students came to me wanting me to post detailed solutions to all of the other old exams by the other instructors. I am not allowed to do this, but I also think you shouldn't need full solutions to every old exam (some people in my department would say I am already giving you too many).

You truly should be able to figure out the solutions to a problem without having to look at full solutions!
If you can't do this, then it is a bad sign. So don't just study exams with posted solutions and DON'T just read solutions (that is not studying!). You have to actually be doing problems and you need to be checking your own work! Don't rely on solutions to check your work. **When you are studying you need to be practicing exactly like you are taking a real exam (and during a real exam you can't check your work by looking at an answer).**

Read my previous newsletters again (especially the end of the newsletter for week 2) for more studying advice.

I hope some of this helps.

Dr. Andy Loveless