Math 125 End of Week 2 Newsletter

UPCOMING SCHEDULE:

Friday:	Section 5.5 (Substitution)
Monday:	Section 6.1 (Area between curves; choose dx or dy?)
Tuesday:	Homework discussion and test prep (bring lots of homework questions!)
Wednesday:	Section 6.2 (Volumes: Cross-sectional slicing, For revolutions: Disc and Washer)
Thursday:	Worksheet 3 - Areas Between Curves: http://www.math.washington.edu/~m125/Worksheets/AreaBetweenCurves.pdf
Next Friday:	Section 6.2 (Volumes of Revolution by cross-sectional shells)

Remember:

Worksheet 1 solutions are here**:** http://www.math.washington.edu/~m125/outline1.php
Worksheet 2 solutions are here: http://www.math.washington.edu/~m125/outline2.php

HOMEWORK info and stats:

Closing Wednesday at 11:00pm: HW_2A, 2B, 2C (These cover 5.3, 5.4, and 5.5)
HW_1A: median score = 100%, median time students had browser open to assignment = 164 minutes
HW_1B: median score = 100%, median time students had browser open to assignment = 113 minutes
HW_1C: median score = 100%, median time students had browser open to assignment = 116 minutes

HOMEWORK COMMENTS:

On HW_2A: I haven't heard too many questions.
Mostly the issues in office hours have been algebraic simplification so that an antiderivative can be found. One bigger issues was a couple of students forgot the connections between the graph of a function and its derivative. If you have forgotten this, then here are some reminders:

1. f(x) have a horizontal tangent exactly when the derivative, f'(x), is zero!
2. f(x) is increasing exactly when the derivative, f'(x), is positive!
3. f(x) is decreasing exactly when the derivative, f'(x) is negative!

These are the fundamental connections we use whenever we analyze a function with its derivative.
For example, if the derivative graph crosses the x-axis and goes from being positive to negative, then the original graph would be changing from increasing to decreasing (so it would have a local maximum).
This is what you need to use on Problem 5.3/11 (note: the graph given is the derivative graph for g(x)).
On HW_2B: I haven't heard too many questions on this either. Questions 9 and 10 are about displacement and total distance as we discussed in lecture and you did in the worksheet. Note: We often ask questions like these on the midterms!
On HW_2C: These are mostly about substitution! We will discuss this Friday and next week. In addition, the last five problems of HW_2C are applied problems. It is very important that you understand how to work with initial conditions in order to find the constant of integration. These problems will help you practice this.

NEW POSTINGS

Here is the course website: https://sites.math.washington.edu/~aloveles/Math125Spring2017/index.html

1. **Full overview of Chapter 5**: https://sites.math.washington.edu/~aloveles/Math125Spring2017/Chapter5.pdf
2. **Overview of 6.1, 6.2, 6.3 (we'll start this next week)**: https://sites.math.washington.edu/~aloveles/Math125Spring2017/Chapter6.pdf
3. **List of all the basic integrals you need to do all the current homework**: https://sites.math.washington.edu/~aloveles/Math125Spring2017/5-4BasicIntegrals.pdf
4. **Section 5.5: discussion of what is going on when we do substitution (Read this!)**: https://sites.math.washington.edu/~aloveles/Math125Spring2017/w12m125substitution.pdf
5. **5.5 Practice Problems (try these this weekend!)**.

A List of Basic Practice Integrals that only require simplification of substitution:
https://sites.math.washington.edu/~aloveles/Math125Spring2017/BasicIntegralPage.pdf
Solutions:
https://sites.math.washington.edu/~aloveles/Math125Spring2017/BasicIntegralPageSolutions.pdf

OLD EXAMS:
The departmental exam archive is here: http://www.math.washington.edu/~m125/Quizzes/Q4.php
My personal exam archive is here:
https://sites.math.washington.edu/~aloveles/Math125Spring2017/LovelessExamArchive.html
Here are some targeted practice problems from old exams on the current material:

for practice using Section 5.3 material:
Fundamental Theorem of Calculus Part 1
Problem 3b: http://www.math.washington.edu/~aloveles/Math125Winter2017/sp16m125e1.pdf
Problem 5a: https://sites.math.washington.edu/~aloveles/Math125Spring2017/w17m125e1.pdf
Problem 2: http://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1.pdf
Problem 2: http://www.math.washington.edu/~m125/Quizzes/week4/win13_mid1.pdf
Problem 2: http://www.math.washington.edu/~aloveles/Math125Spring2016/w12m125he1.pdf
Problem 2: http://www.math.washington.edu/~aloveles/Math125Spring2016/f09m125e1.pdf

for practice using Section 5.4 material:
net change and total change:
Problem 4: http://www.math.washington.edu/~aloveles/Math125Winter2017/sp16m125e1.pdf
Problem 3: http://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1.pdf
Problem 1: http://www.math.washington.edu/~m125/Quizzes/week4/mid1a.pdf
Problem 3: http://www.math.washington.edu/~aloveles/Math125Spring2016/f09m125e1.pdf
Problem 2: http://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1h.pdf

for practice using Section 5.5 material:
u-substitution:
Problem 1b and 2: http://www.math.washington.edu/~aloveles/Math125Winter2017/sp16m125e1.pdf
Problem 1(b)(c): http://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1.pdf
Problem 2: http://www.math.washington.edu/~m125/Quizzes/week4/mid1a.pdf
Problem 1(b)(c): http://www.math.washington.edu/~m125/Quizzes/week4/win13_mid1.pdf
Problem 1(b)(c): http://www.math.washington.edu/~aloveles/Math125Spring2016/f09m125e1.pdf

General integral and chapter 5 skills:
working with and interpreting integrals:
Problem 2(c): https://sites.math.washington.edu/~aloveles/Math125Spring2017/w17m125e1.pdf
Problem 6: https://sites.math.washington.edu/~m125/Quizzes/week4/win16_ostroff_1.pdf
Problems 3, 4: https://sites.math.washington.edu/~m125/Quizzes/week4/spr16_nichifor_C.pdf
Problem 2: https://sites.math.washington.edu/~m125/Quizzes/week4/125_Au14_MT1.pdf
Problem 5(b): https://sites.math.washington.edu/~aloveles/Math125Spring2017/w17m125e1.pdf

ADVICE:
MY EXAM STUDYING STRATEGY WHEN I WAS A GRADUATE STUDENT: I always like to share how I studied when I was in graduate school. I was an okay student as an undergraduate, but I was an excellent student in graduate school (I got perfect scores on every exam in graduate school in my first year). Here was my studying strategy that seemed to work so well for me:
1. **At least 1 week before an exam**, spend an intense night of studying. Try to trick yourself into thinking the exam is the next day. Work through several old exams. This studying should consist of 2 elements:
a) *Problem recognition*: Flip through lots and lots and lots of exams quickly and see if you can figure out how to quickly start each problem.
b) *Working out the details*: Carefully work through a few exams in details to practice finishing problems and to practice being careful with your work.

2. After this intense studying session, talk to me or your TA or someone in the MSC to clear up any confusion you have. (Or, like I did, just keep thinking about it on your own and trying examples until you figure it out yourself).

3. **Then at least 2 days before the exam**, put in another night of intense studying. Then when the instructor reviews in class, all the concepts will be fresh in your mind and you will be able to ask good questions.

More days of studying is better. I often started two-three weeks in advance, this is the condensed version. But, if you only could devote two nights to studying, then this is an efficient and effective use of your time and it gives your mind more time to process the information.

I hope some of this helps. Now you have to put in the time and effort to really get to know these concepts well. If you find something helpful in these newsletters, please share it with your classmates.

Dr. Andy Loveless