Math 125 End of Week 2 Newsletter

UPCOMING SCHEDULE:

Friday: Section 5.4/5.5 (Net and Total Change, Indefinite Integrals, and substitution rule)
Monday: NO CLASS - Holiday
Tuesday: Homework discussion and test prep (bring lots of homework questions!)
Wednesday: Section 5.5/6.1 (Substitution and The Area Between Curves: Choose dx or dy?)
Thursday: Worksheet 3 - Areas Between Curves:
https://www.math.washington.edu/~m125/Worksheets/AreaBetweenCurves.pdf
Next Friday: Section 6.2 (Volumes of Revolution: Cross-sectional slicing (Disc and Washer))
Worksheet 1 solutions are here**:** https://www.math.washington.edu/~m125/outline1.php
Worksheet 2 solutions are here: https://www.math.washington.edu/~m125/outline2.php

HOMEWORK: Closing Wednesday: HW_2A, 2B (5.3 and 5.4)
Closing Thursday: HW_2C (5.5)
HW_1A: median score = 100%, median time = 164 minutes
HW_1B: median score = 100%, median time = 113 minutes
HW_1C: median score = 100%, median time = 116 minutes

NEW POSTINGS

Here is the course website: https://sites.math.washington.edu/~aloveles/Math125Winter2018/index.html
1. **Full overview of Chapter 5 (Read this for more examples of the Fundamental Theorem of Calculus):**
https://sites.math.washington.edu/~aloveles/Math125Winter2018/Chapter5.pdf
2. **Section 5.5: discussion of what is going on when we do substitution (Read this!)**:
https://sites.math.washington.edu/~aloveles/Math125Winter2018/w12m125substitution.pdf
3. **5.5 Practice Problems (try these next week after Monday's lecture)**.
A List of Basic Practice Integrals that only require simplification of substitution.
https://sites.math.washington.edu/~aloveles/Math125Winter2018/BasicIntegralPage.pdf
sol'ns: https://sites.math.washington.edu/~aloveles/Math125Winter2018/BasicIntegralPageSolutions.pdf

OLD EXAMS:

The departmental exam archive is here: https://www.math.washington.edu/~m125/Quizzes/Q4.php
Personal exam archive: https://sites.math.washington.edu/~aloveles/Math125Winter2018/LovelessExamArchive.html
Targeted practice:
for practice using Section 5.3 material: *Fundamental Theorem of Calculus Part 1*
Problem 3b: https://www.math.washington.edu/~aloveles/Math125Winter2017/sp16m125e1.pdf
Problem 2: https://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1.pdf
Problem 2: https://www.math.washington.edu/~m125/Quizzes/week4/win13_mid1.pdf
Problem 2: https://www.math.washington.edu/~aloveles/Math125Spring2016/w12m125he1.pdf
Problem 2: https://www.math.washington.edu/~aloveles/Math125Spring2016/f09m125e1.pdf
for practice using Section 5.4 material: *net change and total change*:
Problem 4: https://www.math.washington.edu/~aloveles/Math125Winter2017/sp16m125e1.pdf
Problem 3: https://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1.pdf
Problem 1: https://www.math.washington.edu/~m125/Quizzes/week4/mid1a.pdf
Problem 3: https://www.math.washington.edu/~aloveles/Math125Spring2016/f09m125e1.pdf
Problem 2: https://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1h.pdf
for practice using Section 5.5 material: *u-substitution:*
Problem 1b and 2: https://www.math.washington.edu/~aloveles/Math125Winter2017/sp16m125e1.pdf
Problem 1(b)(c): https://www.math.washington.edu/~aloveles/Math125Spring2016/w11m125e1.pdf
Problem 2: https://www.math.washington.edu/~m125/Quizzes/week4/mid1a.pdf
Problem 1(b)(c): https://www.math.washington.edu/~m125/Quizzes/week4/win13_mid1.pdf
Problem 1(b)(c): https://www.math.washington.edu/~aloveles/Math125Spring2016/f09m125e1.pdf

See the next page for course advice.

STUDYING ADVICE:
MY EXAM STUDYING STRATEGY WHEN I WAS A 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 is how I did it:

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.

HOMEWORK HINTS:
On HW_2A: I haven't heard too many questions, yet. Mostly the issues in office hours have been algebraic simplification so that an antiderivative can be found. One bigger issue 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 a reminder:

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!

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: Questions 9 and 10 are about displacement and total distance as we will discuss in class 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/Wednesday. 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.

Hope some of this helps.

- Dr. Andy Loveless