Math 126 End of Week 5 Newsletter

UPCOMING SCHEDULE:

Friday:	Section 10.3/14.1 (Polar and Introduction to Surfaces)
Monday:	Section 14.3 (Partial Derivatives)
Tuesday:	Homework Q&A
Wednesday:	Section 14.3/14.4 (Tangent Planes and Intro to Max/Min)
Thursday:	Homework Q&A
Next Friday:	Section 14.7 (Max/Min)

Exam 1 Reviewing, Reflection and Regrades Information:

Early next week, I will be emailing you exam information and statistics. I also will be emailing information about regrades and an exam reflection survey. So be looking for that email. Briefly, here are some important things I will say:

1. When you get your exam back, quickly review it and immediately report any miscalculations or tallying to your TA.
2. Then take your exam home and review the questions, carefully read and consider the posted solutions. Also fill out the exam reflection survey. The link is here: https://catalyst.uw.edu/webq/survey/aloveles/362876 (**but this won't be open until Tuesday!**)
3. If you have carefully considered the exam and the solutions and you have a complaint about grading, then you must bring me your exam by Friday (at lecture or office hours). I will take your exam and consider the issue and add comments. You can NOT bring me regrade questions after Friday. I expect you to review your midterm immediately and bring me your questions right away.

HOMEWORK: Closing Tues: 10.3 Closing Thurs: 14.1, 14.3(part 1)

NEW POSTINGS

Remember the course website is here: https://sites.math.washington.edu/~aloveles/Math126Fall2018/index.html

1. **More practice with partial derivatives: Check this out after by 14.3 lecture.**
   https://sites.math.washington.edu/~aloveles/Math126Spring2017/PartialDerivativesPractice.pdf
2. **Summary of max/min calculus 1 facts on page 1 (read this by the end of next week)**
   On Friday we will generalize to 3D which is summarized on page 2
   https://sites.math.washington.edu/~aloveles/Math126Spring2017/m124-126max-minreview.pdf

OLD EXAMS: As always, at the end of each week, I strongly encourage you to look in the exam archive to practice some exam problems pertaining to the current material. Here are a few chapter 14 questions (we didn't yet finish 14.7 this week, we will on Wednesday), but it would be a good idea to still look at these 14.7 problems now.

For practice with 10.3 you might try (again, these will NOT be on exam 1):

Problem 4 from: http://www.math.washington.edu/~aloveles/Math126Spring2013/sp11m126e1.pdf
Problem 3 from: http://www.math.washington.edu/~aloveles/Math126Spring2013/sp10m126e1.pdf
Problem 1 from: http://www.math.washington.edu/~m126/midterms/midterm1/mid1_win09_perkins.pdf
Problem 4 from: http://www.math.washington.edu/~aloveles/Math126Spring2013/Taggartf09e1.pdf
Problem 5 from: http://www.math.washington.edu/~m126/midterms/midterm1/m126aut10conroyExI.pdf

For practice with 14.1, 14.3, 14.4:

Problem 2 and 3a from: https://sites.math.washington.edu/~aloveles/Math126Spring2017/w16m126e2.pdf
Problem 3 from: http://www.math.washington.edu/~m126/midterms/midterm2/m126spr14novikExII.pdf
Problem 2 from: http://www.math.washington.edu/~m126/midterms/midterm2/m126win14bekyelExII.pdf
Problem 2a from: http://www.math.washington.edu/~m126/midterms/midterm2/m126spr13lovelessExII.pdf
Problem 2 from: http://www.math.washington.edu/~m126/midterms/midterm2/m126spr14perkinsExII.pdf
Problem 2a from: http://www.math.washington.edu/~m126/midterms/midterm2/m126aut12lovelessExII.pdf
Problem 1b from: http://www.math.washington.edu/~m126/midterms/midterm2/m126spr11lovelessExII.pdf
Problem 2 from: http://www.math.washington.edu/~m126/midterms/midterm2/m126spr10lovelessExII.pdf

EXAM ADVICE AND COMMENTARY

Several students have emailed me about how to do better on Exam 2. Here is a short version of some of things I have said in email to several of these students: I think I have given a lot of advice on things to try, but it truly comes down to **practicing homework and old exams in an exam-like situation!**

Several of the questions were directly from homework (the entire last page was directly from homework that had been due within the 5 days leading up to the exam). So the question is: If you got the homework question correct, then missed the exact same problem a few days later, how do you explain this disconnect? Treat homework like it is an exam and when you study make sure ***the FIRST thing you do is know all the homework***.

Then, before the exam, you MUST do a lot of problems completely on your own, do not look at notes, do not look at practice another version, do not look at online videos, do not ask a friend or a tutor. If you don't ever practice doing problems on your own before the test, then you won't be ready. Once you are confident on all the homework, then work through several old exams at least one week before the next midterm and come show me or your TA or a tutor your work. We can comment on ways to better show your understanding, but you have to put in the time and do lots of problems on your own without relying on notes or a tutor.

Also practice checking your work. Some things are easier to check than others. Things that are easy to check should be done right away (if a vector is orthogonal or if the solution you found is actually a solution). If you build checking your work into your routine you can avoid small errors.

For the second test, you should expect:

1. At least one page on 13.4 and/or 10.3 (acceleration/velocity and polar). You will want to practice such questions and make sure your computations are fast.
2. At least 1+ page on 14.1, 14.3, 14.4, 14.7 partial derivatives related material (computing partials, tangent plane, local max/min, global max/min, second derivative test). **It will be vitally important that you get your partial derivatives right. You'll want to check those twice**. Also when you find the critical points, you can check to make sure that they all make BOTH partials equal to zero. So you can be sure your points are right!!
3. At least 1+ page on 15.1-15.4 double integrals (set up, general regions, polar regions, switching order of integration) We will discuss these skills in chapter 15.

You can see there are fewer total skills going into exam 2. And you won't need as much time for tedious computations. But the processes and ideas are bigger. In any case, you will need to practice, practice, practice to build good routines in order to cut down on errors (and check things you can check).

COURSE MATERIAL NOTE (remembering Math 124):
Read this carefully and check out the links if you want to be ready for Chapter 14!

We have finished our discussion on 3D curves. Now we will discuss surfaces. The Chapter 14 discussion of surfaces is a lot like things you did in Math 124 for one variable functions. Here are skills I expect you to remember from Math 124.
Given a one variable function can you answer these questions:

a) What is a critical value?
b) What is a local max/min?
c) What is a global max/min?
d) What are the first and second derivative tests?
e) How do you do applied optimization problems?

It will be easier to understand Chapter 14 if you remember these facts. The one variable facts above are all from Chapter 4 of our textbook which you could reread if you don't know the answers to the questions above. You can also read these review sheets from my **materials from my Math 124 course**:

If you don't remember max and min from calculus 1, then here are some of my materials from that course that you could read through this weekend:

My basic review of these facts from chapter 4 of Math 124:
http://www.math.washington.edu/~aloveles/Math124Winter2013/m124week7reviewNOMeanValue.pdf
and read my calculus 1 lecture notes on this topic:
https://sites.math.washington.edu/~aloveles/Math124Fall2017/4-3%20Notes%20-%20f17.pdf
Here is another sheet of example problems of max/min questions (from my business calculus class):
https://sites.math.washington.edu/~aloveles/Math112Winter2018/m112review10-1-10-3.pdf
(The link above contains 3 full examples with pictures).
*Overhead examples of applied optimization problems that we ask our students to do in Math 124***:**
http://www.math.washington.edu/~aloveles/Math124Winter2013/4-7OptimizationOverheads.pdf
and here are my lectures notes on applied max/min from Math 124:
https://sites.math.washington.edu/~aloveles/Math124Fall2017/4-7%20Notes%20-%20f17.pdf
If you want some general practice with critical points and max and min from calculus 1, check out these old finals:
Problem 6 from: https://sites.math.washington.edu/~m112/Final/w18_final_loveless.pdf
Solutions: https://sites.math.washington.edu/~m112/Final/w18_final_loveless_sol.pdf
Problem 7 and 8 from: https://sites.math.washington.edu/~m124/source/Exams/Final/final_17sp/final.pdf
Answers: https://sites.math.washington.edu/~m124/source/Exams/Final/final_17sp/answers.pdf

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I hope some of this helps. Now you have to put in the time and effort to really get to know these concepts well.

Dr. Andy Loveless