

Math 251 Review for Final

Here are a bunch of my random thoughts on the final. Since we are short on time this term, I thought I would give you this rather than ramble in front of you for an entire class.

- Here are the main two skills you should take away from this course:

1. DIFFERENTIATING
2. Finding LIMITS

On the final, you will be doing both over and over and over again. Of course, there are many problems I can ask you which require you to differentiate (story problems, max/min problems, equations of tangent lines, velocity problems, . . .) but if you cannot take derivatives, or find limits you will not pass the final.

- Definitions and Theorems to know:

1. ϵ, δ definition of a limit.
2. The squeeze theorem
3. The difference quotient definition of a derivative. . . $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$
[There will be exactly one question on the final asking you to compute the derivative using the difference quotient. Unless I specifically ask you to use the difference quotient, you don't have to.]
4. The Extreme Value Theorem
5. Fermat's Theorem
6. The Mean Value Theorem
7. L'Hospital's Rule

- Chapter 4 Review (page 361-364)

Concept Check: 1-6, 7(a)

True-False: 1-15, 18

Exercises: 1-6, 7-12, 15-17, 19-34, 50

- Work through review problems for chapters 2 and 3 given before midterms.
- Make sure you know how to do all problems from old quizzes and exams (if you've lost them, they're posted online).
- Most of you have gotten much better with your notation. . . good job. . . make sure you don't go back to writing nonsense. Be sure you know how to show all you work using correct notation.
- If you have nothing better to do, practice taking derivatives. You can never get too good or too quick at taking derivatives.
- Get a hold of me throughout finals week whenever you have questions. I will usually be around, so if you stop by my office you might catch me. Otherwise email me and we can set up a time to meet.