

Review for the 211 midterm #1

Batman

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The Dark Knight here. I'm here to help you study for the midterm, which for you all in Math 211, is on Monday October 16th. I've been called a superhero, and yet I don't have any super power, except possibly for my brain. See, I'm a scientist, and I like to see why stuff works out. I've studied calculus and mastered it just after I was born, and here are my thoughts on the midterm, and what it will cover.

1. Section 1.4: Continuity and one-sided limits. I would know what a continuous function is for sure. This is a big concept, and you will see it later. Remember that there are a few basic functions that we know are continuous, and we have rules that extend the library of continuous functions that we know to many, many functions. Be able to tell which functions are continuous, and why. As far as one sided limits go, I would be able to figure out a one sided limit on a graph that Corey could give you, along with knowing whether or not these exist. The intermediate value theorem is an interesting theorem, and I would know it. It's not clear to me right now exactly if Corey would ask anything about it, but make sure you study the homework questions 83-86 from this section just in case.
2. Section 1.5: Infinite limits. It is in this section that Corey will finally reveal to you the real deal with infinite limits. Don't worry about the formal definition of these (it's an $M - \delta$ argument, rather than an $\epsilon - \delta$ argument. Perhaps we will come to these later. Corey will write it down in class, and show you how to study these problems, but I've looked into his mind and don't see him asking about formal proofs

with regard to infinite limits. Rather, he might ask you to determine what a limit is, where the answer of ∞ or $-\infty$ is fair game.

3. Section 2.1: The derivative and the tangent line problem. Corey has shared with me that he doesn't feel confident that he'll get through all of 2.1 within a reasonable distance from the exam. So he'll only ask you to do one thing from Section 2.1 for the exam (for the next quiz, though, the rest of 2.1 will be fair game). He'll give you a function $f(x)$, and will ask you to compute a certain limit:

$$\lim_{\Delta x \rightarrow 0} \frac{f(x + \Delta x) - f(x)}{\Delta x}.$$

Be sure you know how to do this, it is *very important*.

4. Other suggestions: I would go over the quiz very carefully. You can expect many of the same questions you saw there, and perhaps some you didn't see on the quiz. After all, Corey couldn't have asked you everything you're supposed to know on a 20-30 minute quiz. Be sure to use my study guide, and Homer's study guide he published on the course website earlier as a guide. And in your studying, be sure to ask Corey for help... the earlier the better. I understand that Corey is having a difficult time getting internet and home set up and if you wait too long he may not ever know you needed the help. Oh, and one more thing:

ROCK ON!!!!