

Quiz # 1 Review

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Hello, everyone! Homer Simpson here to give you some help in preparing for your first quiz. As you can see, I was shocked that the time has come up so suddenly! The quiz is next week! For the 211 class, the quiz is Monday October 9, while for 212, the quiz will be Wednesday October 11. For both classes, the quiz will likely take up 20 to 30 minutes at the end of class, and for that day Corey has told me he will likely cover a small amount of material at the beginning of class, then answer a bunch of questions, and then hand out the quiz. Corey has assured me that the point of quizzes is to help you prepare for the exams. So although he'd like to give you the whole class period to take the quiz, it's not a very realistic simulation of what the exam will be like... the quiz will be about half the length of an exam, and the exam will take the whole class period, so he figures the best practice for you would be to take half a class period for the quiz. At any rate, as the class goes on, I and several others will help you out by writing out more specific information to help you prepare for tests and quizzes when the time comes near. Below, for instance, I've sifted through the sections that the quiz will cover, and typed out what I know Corey thinks is important. Keep in mind that the exam will cover this information, as well as some information that we cover between the quiz day and the exam. ROCK ON!

1. Section 4.1: Antiderivatives. The big deal from this section is to understand what antiderivatives are, and why a certain function's antiderivative is not unique. Along

those lines, how not unique is it? The fact is, that given a function $f(x)$, any antiderivative of $f(x)$ will be of the form $F(x) + C$, where $F'(x) = f(x)$. Another notation would be $\int f(x)dx = F(x) + C$, the *indefinite integral* of $f(x)$. Corey told me that he wants you to know basic integration formulae, such as those found on page 250, or almost identically from the class notes. Also, understanding what a differential equation is, and how to find particular solutions given initial conditions will also be good to know.

2. Section 4.2: Area. This section gave the solution to the area problem in terms of the limit process. I would know how to go through this limit process to find the area of a region bounded by a curve, see, for example problems 47-56. Along those lines, I would also commit to memory the summation formulae on page 260, these will be invaluable for the purposes of the quiz. Also, an understanding of Σ notation will be useful.
3. Section 4.3: Riemann Sums and definite integrals. This section really just is a carbon copy of the last section, except they introduce the notation for a *definite integral*: $\int_a^b f(x)dx$ is to stand for the area underneath the curve $f(x)$ between the values $x = a$ and $x = b$. Accordingly, there are several properties that will be of use to us as we try to evaluate definite integrals, see the class notes, or pages 276-278.
4. Section 4.4: The Fundamental Theorem of Calculus. This is the best section ever. If I didn't work at the nuclear power plant in Springfield, I would spend my life studying the Fundamental Theorem of Calculus. There are two parts to this theorem that relates antiderivatives to area. I would know both of them. In class you will see a detailed discussion of both parts. For the quiz, I would know how to apply both of these theorems. The homework for this section will provide great practice for the kinds of problems you're likely to see on the actual quiz and exam.
5. General Suggestions: I suggest that you study for this quiz. That may be a no-brainer, but if you get some good studying in, and you understand the concepts, Corey seems to think that you'll do very well. Also, another no-brainer for you: *read the directions!* Some problems may ask you to do something very straightforward, while other questions may be more detailed. Lastly, don't freak out. Whenever I see a question about calculus, I usually forget what a limit is, or what I'm supposed to be looking for and say to myself "DO'H!" So, good luck, and remember to take advantage of Corey's office hours in advance if you need help. Oh, and

ROCK ON!