

Quiz # 1 Review

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Hello, everyone! This is Nibbler coming to you from the year 3000 and from the TV show Futurama to help you prepare for your upcoming quiz on Thursday 10/11. For each quiz and exam Corey has one of his buddies write a review sheet that outlines the important facts about each section he covers that the quiz or exam will cover. So, for example, the quiz on Thursday covers Sections 4.1, 4.2 and 4.3. He asked me to write this review sheet about those sections for you. Oh, and 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. 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. So, good luck, and remember to take advantage of Corey's office hours in advance if you need help. Oh, and

ROCK ON!