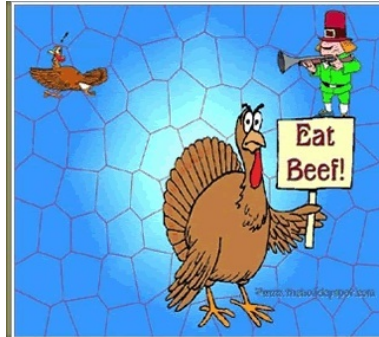


Quiz #3 Review Sheet of Awesomeness

By: A Clever Thanksgiving Turkey

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Greetings! I hate this time of year. Every one of my friends keeps disappearing, all of those humans keep leering at me, and the only consolation is that I'm getting fed extra food (certainly to "fatten me up" for the holidays). Well, I'm taking a stand and suggesting to the rest of the world that beef is a perfect alternative for Thanksgiving dinner, or even Tofu Turkey, but just not me! To take my mind away from these issues I've written for you this review sheet which describes what will be on the quiz this Wednesday, Nov. 29th. ROCK ON!

1. Section 2.6: Related Rates. This section is great. Actually, it can be annoying if you dislike story problems. But, finally, some story problems that are actually interesting! In this section one is given a description of some sort of situation. As time increases, there is usually some sort of movement described: something being filled with water, someone moving from 2nd to 3rd base, you watching your shadow move across the floor, etc. A working knowledge of the Pythagorean Theorem will be very helpful. There will likely be 2 or more quantities involved that you would implicitly assume are quantities that depend on time. The question might ask you about some rate of change, and it is your job to determine an equation that relates the rates involved, differentiate that relationship (usually implicitly) and solve for the desired rate.
2. Section 3.1: Extrema. In this section (and chapter, as a whole) we study functions through the eyes of derivatives. That is, we gather information about a function

(and/or its graph) by studying the derivative of the function. We learned that *critical points* are of utmost importance. We also learned that if a function is continuous on a closed and bounded interval, then there exists a global (or absolute) maximum and minimum on the interval given—these must occur at critical points (by definition, the endpoints of the interval are considered critical), and hence the importance for their study. I would know how to find global extrema by considering these critical points.

3. Section 3.2: Rolle's Theorem and the Mean Value Theorem. This section rules. It's about two very important theorems in mathematics – these theorems are used all over the place and I wouldn't be a very clever turkey if I didn't point that out. I would know when you can apply these theorems and how to find the points they guarantee exist.
4. Section 3.3: Increasing and Decreasing functions and the 1st derivative test. This section discusses when functions are increasing and/or decreasing, again, through the use of the first derivative. The 1st derivative test is something that describes the behavior of a function near a critical point, and thus, will help to identify local (or relative) extrema.
5. General Suggestions and homework problems I would study: Now, I'm just a silly turkey, but I do know how to study calculus. For section 2.6, there's nothing that will help you more than just doing lots of problems. Try, from that section, examples 4 and 5 (page 152), 16, 18, 22, and 27. All of the homework questions from that section are good practice, but the ones I've listed will be extremely helpful. From section 3.1 I would look very closely at 13-16, 19-28, and 37-40. Again, all of the homework is good practice, but these questions are very similar to the kinds of questions I may ask you on the quiz/test/final. Rock on! Section 3.2, numbers 1-4, 11-18, 33, 35, 39-46, and 61. And from Section 3.3 I suggest considering carefully 9-15, and especially 17-38. Oh yes, numbers 55-60 are important as well.