

Quiz 7

DUE: MON. OCT. 27

Name: _____

Date: _____

Friday October 24

Time Begun: _____

Ron Buckmire

Time Ended: _____

Topic covered: Fundamental Theorem of Calculus

The idea behind the quiz is for you to express your understanding of fundamental theorem of Calculus

Reality Check:

EXPECTED SCORE : _____/10

ACTUAL SCORE : _____/10

Instructions:

0. Look for a hint about this quiz online, at <http://blackboard.oxy.edu>.
1. Once you open the quiz, you have 30 minutes to complete it.
2. You **may not** use the book or any of your class notes, but you may use a calculator. You must work alone.
3. If you use your own paper, please staple it to the quiz before coming to class. If you don't have a stapler, buy one.
4. After completing the quiz, sign the pledge below stating on your honor that you have adhered to these rules.
5. Relax and enjoy....
6. **This quiz is due on Monday, October 27**, at the beginning of class. NO LATE QUIZZES WILL BE ACCEPTED.

Pledge: I, _____, pledge my honor as a human being and Occidental student, that I have followed all the rules above to the letter and in spirit.

SHOW ALL YOUR WORK

Devon: Clearly there is no way to evaluate this integral.

Lee: But this is a definite integral, so we must be able to apply the Fundamental Theorem of Calculus to obtain a value for I (it's just a number).

Devon: Hmmm, well now that you mention that it's a definite integral I remembered that we can estimate any definite integral using Riemann sums like Simpson's Rule.

Lee: Why bother? We can use integration by substitution if we let $u = \sqrt{x}$ to rewrite the given integral as $\int_1^{\sqrt{2}} 2ue^u du$ and then integrate by parts, substitute back to obtain the anti-derivative $F(x) = 2e^{\sqrt{x}}(\sqrt{x} - 1)$ which we then use to find an approximate value of I equal to $F(2) - F(1)$.

Devon: Well, you have to do all that work to get an approximate answer and I can just plug some symbols into a TruBasic program, set $N = 1000000$ and also get a really really accurate estimate, so I think my way is better!

[1.] (10 points) Write **at least 5 sentences** discussing the students' understanding of The Fundamental Theorem of Calculus. Identify **any** and all correct, incorrect or partly correct statements made by the students. If a statement is incorrect explain why. **You must be careful not to make any incorrect statements yourself in your explanation.** PROOFREAD YOUR ANSWER.