Math 118 Fall 2003

ADVANCED PLACEMENT CALCULUS

Quiz 9

DUE: MON. NOV. 10

Name: _______________________________

Date: _______________________________
Time Begun: _________________________
Time Ended: _________________________

Friday November 7
Ron Buckmire

Topic covered: Taylor Approximations

The idea behind the quiz is for you to illustrate your understanding of Taylor Approximations

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, November 10, 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.
Consider the function \( f(x) = \sqrt{3^2 + x} \).

Our goal is to use Taylor Approximations to approximate the \( \sqrt{10} = f(1) \) using information about the function \( f(x) \) and its derivatives at \( x = 0 \).

(a) (3 points). Use the First Order Taylor Polynomial approximation, (also known as the tangent line) to obtain an approximation of \( f(1) = \sqrt{10} \).

(b) (4 points) Use the Second Order Taylor Polynomial approximation to obtain another approximation of \( f(1) = \sqrt{10} \).

(c) (3 points) **Answer the following three questions:** Which of the approximate values you computed in (a) and (b) is more accurate? How do you know which is more accurate? How would you improve the accuracy of your estimate?