Math 114 Fall 2005

BONUS Quiz **6** — Experienced Calculus I

Name: _____

Date: _____
Time Begun: _____
Time Ended: _____

Math 114
Friday November 4, 2005
Ron Buckmire
Angela Gallegos

Topic: Initial Value Problems

This bonus quiz is intended as another opportunity for you to illustrate your understanding of the application of solutions to initial value problems.

Reality Check:

EXPECTED SCORE : _____**/10** ACTUAL SCORE : _____**/10**

Instructions:

0. Before you open the quiz, look at the hint at `http://faculty.oxy.edu/ron/math/114/05/quiz.html`
1. Once you open the quiz, **you have 30 minutes to complete it**.
2. You may not use your text or any other source, including course materials. You may use a calculator. You must work alone. Do not discuss the contents of this quiz with anyone.
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 or borrow one. **UNSTAPLED PAPERS WILL NOT BE GRADED**.
4. After completing the quiz, sign the pledge below stating on your honor that you have adhered to these rules.
5. Your solutions must have enough details such that an impartial observer can read your work and determine HOW you came up with your solution.
6. **This bonus quiz is due on Monday, November 7**, 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

(10 points) Reconsider the rate equation $\dfrac{dx}{dt} = (x-2)(x+1)$. Verify that the solution $x(t)$, implicitly given by

$$\frac{x-2}{x+1} = \frac{1}{4}e^{3t}$$

satisfies the I.V.P. (initial value problem) consisting of the rate equation above and the initial condition $x(0) = 3$.