BONUS Quiz 1

DUE: MON. FEB. 10

Name: _____   **Prof. Ron Buckmire**

Date: _____   **Friday February 7**

Time Begun: _____

Time Ended: _____

Topic covered: Integration by Parts and Integration by Substitution

The **student learning outcome** of this quiz is for you to illustrate your understanding of the techniques of integration called integration by substitution and integration by parts.

Reality Check:

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

Instructions:

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 extra paper, please staple it to the quiz before coming to class. UNSTAPLED SHEETS WILL NOT BE GRADED.

4. After completing the quiz, sign the pledge below stating on your honor that you have adhered to these rules. Complete the reality check to give yourself a sense of how well you think you did on the quiz.

5. Relax and enjoy....

6. **This quiz is due on Monday, February 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.

SHOW ALL YOUR WORK AND EXPLAIN EVERY ANSWER

Given the following information about an unknown function $g(x)$ which is always continuous and differentiable

$$\int_1^2 \frac{g(u)}{u^2}\,du = 3, \quad \int_{\frac{1}{2}}^2 \frac{g(u)}{u^2}\,du = 5, \quad g(1/2) = 2, \quad g(1) = -2, \quad g(2) = 1, \quad g(4) = 4$$

(a) [*5 points*] Evaluate $I = \displaystyle\int_1^2 g\left(\frac{1}{x}\right)\,dx$. [HINT: Use integration by substitution].

(b) [*5 points*] Evaluate $J = \displaystyle\int_{1/2}^2 \frac{g'(x)}{x}\,dx$. [HINT: Use integration by parts].