Math 118 Fall 2002 ADVANCED PLACEMENT CALCULUS

Quiz **6**

DUE: MON. OCT. 21

Name: _____

Date: _____ **Friday October 18**
Time Begun: _____ Ron Buckmire
Time Ended: _____

Topic covered: Numerical Integration

The idea behind the quiz is for you to illustrate your understanding of the relationships between the various numerical methods for evaluating a definite integral.

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 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 21, at the beginning of class. NO LATE QUIZZES WILL BE ACCEPTED.**

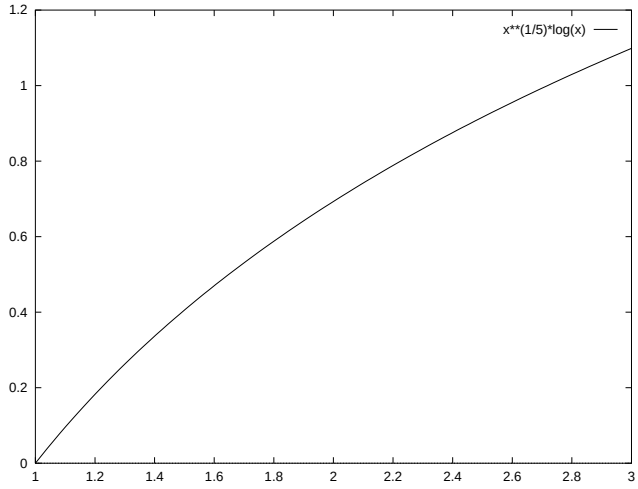
Pledge: I, _____, pledge my honor as a human being and Occidental student, that I have followed all the rules above to the letter and in spirit.

Math 118 Fall 2002 Quiz **SIX**

SHOW ALL YOUR WORK

(a) [*4 points.*] Using Left-Hand Riemann Sums (L), Right-Hand Riemann Sums (L), the Midpoint method (M) and the Trapezoidal Rule (T) (all with N=50) one obtains the approximations **L**, **R**, **M** and **T** to $I = \int_1^3 \sqrt[5]{x}\ln(x)\,dx$. From looking at the graph of $\sqrt[5]{x}\ln(x)$, the values themselves and your knowledge of each of the numerical methods, fill in the table with the letter (**L**, **R**, **M** or **T**) associated with the approximate value to the integral. and fill in the table with the name of the method associated with the approximate value.

Numerical Method	Approximate value
	1.493173
	1.520544
	1.520643
	1.547916



b [*2 points.*] For each of the values you filled in the table in part **(1)**, write down your reasons. That is, *explain* how you know the relative sizes of **L**, **R**, **M** and **T**.

(c) [*2 points.*] Use the data in the completed table to compute a numerical approximation **S** to the integral using Simpson's Rule.

(d) [*2 points.*] Write a formula for **S** using some or all of the symbols **L**, **R**, **M** and **T**