Math 31L Lab Quiz #3

Blake, Fall 2001

Name: _____

1. (10 points) Suppose f is a continuous function that is strictly decreasing over the interval [a,b]. List the following quantities in order from smallest to largest.

A. $\int_a^b f(t)dt$ B. Right-hand Sum with $N = 500$. C. Right-hand Sum with $N = 700$.

D. Left-hand Sum with $N = 40$. E. Left-hand Sum with $N = 60$.

_____ $\leq$ _____ $\leq$ _____ $\leq$ _____ $\leq$ _____

2. (12 points) Some of the sums below are good approximations of $\int_3^7 sin(x^2)dx$ and some are not.

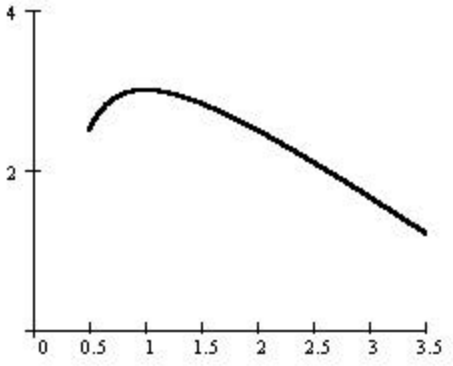
Beside the ones that are are good approximations, indicate what kind of approximation it is (RHS, LHS, etc). If the sum does not approximate this integral well, then write "NOT."

$\sum_{k=1}^{5000} sin\big((3+.0008k)^2\big)(.0008)$ _____ $\sum_{k=0}^{999} sin\big((.004k)^2\big)(.004)$ _____

$\sum_{k=0}^{799} sin\big((3+.008k)^2\big)(.008)$ _____ $\sum_{k=1}^{1000} sin\big((3+.004k)^2\big)(.004)$ _____

$\sum_{k=0}^{999} sin\big((3.002+.004k)^2\big)(.004)$ _____ $\sum_{k=0}^{999} sin\big((3.001+.004k)^2\big)(.004)$ _____

3. (8 points) Let $f(x) = -\frac{1}{x} + 5 - x$ for $\frac{1}{2} \leq x \leq \frac{7}{2}$. Suppose we use two subintervals to construct a Riemann sum to approximate $\int_{\frac{1}{2}}^{\frac{7}{2}} f(x)dx$. Circle the largest possible value the Riemann sum could have.



0	9	3	$\frac{33}{4}$
$\frac{15}{2}$	$\frac{39}{7}$	$\frac{26}{7}$	5
$\frac{17}{14}$	$\frac{5}{3}$	$\frac{11}{2}$	7.054089851