Name: _____ **Section Number:** _____

TA Name: _____ **Section Time:** _____

Math 20B.
Midterm Exam 2
February 25, 2004

You may use one page of notes, but no other assistance on this exam.
Read each question carefully, answer each question completely, and show all of your work.
Evaluate integrals using methods discussed in the course and show your calculations.
Write your solutions clearly and legibly; no credit will be given for illegible solutions.
If any question is not clear, ask for clarification.

1. (4 points) A radar gun was used to record the speed of a runner during the first five seconds of a race; the data is recorded in the table below. Estimate the distance the runner traveled during the five seconds using the Trapezoidal Rule. (Note: You need not simplify.)

Time (sec)	0	1	2	3	4	5
Velocity (meters/sec)	0	7.3	9.7	10.5	10.7	10.8

#	Score
1	
2	
3	
4	
5	
Σ	

2. (4 points) Evaluate the indefinite integral

$$\int e^{i5x} \cos(3x)\, dx.$$

You may leave the result in exponential form.

3. (8 points) Evaluate the improper integral

$$\int_0^3 \frac{x^2}{\sqrt{9-x^2}}\,dx$$

or show that it diverges.

4. (4 points) Evaluate the indefinite integral

$$\int \frac{\ln(x)}{\sqrt{x}}\, dx.$$

5. (8 points) Evaluate the definite integral

$$\int_0^1 \frac{x^3 - 6x + 1}{x^2 - x - 6}\, dx.$$