

Name: _____ Section Number: _____

TA Name: _____ Section Time: _____

Math 20B.
Midterm Exam 2
March 1, 2006

Turn off and put away your cell phone.

No calculators or any other devices are allowed on this exam.

You may use one page of notes, but no books or other assistance on this exam.

Read each question carefully, answer each question completely, and show all of your work.

Write your solutions clearly and legibly; no credit will be given for illegible solutions.

If any question is not clear, ask for clarification.

1. (6 points) Evaluate $\int e^{i2x} \cos(x) dx$. You may leave the result in exponential form.

#	Score
1	
2	
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Σ	

2. (6 points) Evaluate $\int \frac{1}{(x^2 + 16)^2} dx$.

3. (8 points) Evaluate $\int \frac{2x^4 + 3x^2 - 4}{x^3 + x} dx$.

4. (6 points) A radar gun was used to record the speed (in meters per second) of a runner during the first six seconds of a race; the data is recorded in the table below. Estimate the distance the runner traveled during the six seconds using the Trapezoid Rule. (Note: You need not simplify the resulting expression.)

Time (sec)	0	2	4	6
Velocity (meters/sec)	0	8.3	9.3	10.3

5. (a) (2 points) $\int_0^{\infty} e^{-x} dx$ converges. Find its value.

(b) (4 points) By applying the Comparison Theorem, determine whether

$$\int_0^{\infty} e^{\cos(x)} \cdot e^{-x} dx$$

converges. Be sure to justify your conclusion.

6. (6 points) Determine whether the sequence $\left\{ \frac{2n^2}{5n^2+2n+1} \right\}$ converges. If it converges, find its limit.