

## LIST OF TOPICS FOR MATH 20B: MIDTERM 2

- Exam Date: 16 Nov 2012, usual lecture time.
- You must bring a Blue Book in which to write your exam.
- Please bring your UCSD student ID to the exam and expect it will be checked.
- You may bring one 8.5"  $\times$  11" sheet of *handwritten* notes (front and back) to the exam.
- No calculators or other electronic devices!!

The exam will be based on the homework questions and lecture material, including all examples presented in class. To help guide your studying, make sure you are familiar with the following topics:

### TOPICS

1. Polar Coordinates
  - (a) Converting between polar and rectangular coordinates
  - (b) Finding the area of a region described by a polar curve.
2. Complex numbers
  - (a) Definition of complex numbers, complex conjugate, polar form of a complex number, etc.
  - (b) De Moivre's Formula and Euler's Formula
  - (c) Complex exponentials and integration using complex exponentials.
3. Trigonometric integrals
4. Partial fractions
5. Trigonometric substitution
6. Improper integrals
  - (a) Type I and Type II improper integrals
  - (b) Computing improper integrals using the limit definition
  - (c) Using the Comparison Test to determine convergence or divergence of improper integrals.

The focus of the second midterm is on topics we have covered since the first midterm; however, the newer material builds on the concepts we learned earlier in the quarter. You will be expected to understand the material we covered earlier in the class in addition to the above topics.