For the upcoming test you will be asked questions based on the theory and homework so far (1.1-1.6 and 2.1-2.4 of the text). In addition to reviewing your homework, I suggest you work through the extra practice problems (from the textbook) that were assigned each week; some of these same questions will likely appear on the test. Note that I have not yet assigned any hand-in homework from Sections 2.3 or 2.4 and so you are strongly encouraged to work through the extra practice problems from those sections.

I will not ask you to reproduce any large proofs of theorems covered in class, but you may see the shorter homework type of proof or "show" questions.

Cheat Sheet and Calculator

A single double-sided letter-size handwritten "cheat sheet" containing formulae, theory and numerical values may be used for the test. The cheat sheet may not contain worked examples however, and must be submitted when you hand in your test.

A standard non-graphing scientific calculator may be used.

Definitions and Concepts

Key concepts you should know:

1. the basic algebra rules for complex numbers, including complex conjugation.
2. how to graph or sketch a region described by an equation (exercise 1.2.7)
3. how to convert between the Cartesian and polar forms of complex numbers.
4. how to use Demoivre's formula and/or the complex exponential to work with complex numbers in polar form.
5. how to compute powers and roots
6. how to categorize sets in the plane (open, closed, etc.)
7. how to decompose complex valued functions into real and imaginary parts
8. how to determine the image of a set under a complex mapping.
9. the concept of convergence of a sequence and how to determine the limit of a sequence.
10. the concept of the limit of a function and how to use it to prove a basic limit or continuity result (exercise 2.2.14 for example).
11. the limit definition of continuity.

12. what it means for a function to be differentiable, analytic, entire, and the derivative rules mentioned so far.

13. how to use the Cauchy-Riemann equations to prove (or disprove) differentiability.

Important Theorems and Formulas

Know the statement and application of the following theorems and formulas:

1. DeMoivre's formula
2. The formula (or method) for finding the m^{th} roots of a complex number
3. The Cauchy-Riemann equations (Theorems 4 and 5 of 2.4).