

## Assignment #2

Due *Thursday, 15 September, 2005.*

I. The mathematical prerequisites for Fourier series and Fourier transforms (chapters 12 and 13 of RILEY, HOBSON, & BENICE) are

- integral and differential calculus of one variable (*this goes without saying from now on!*),
- sequences and series,
- complex numbers and exponentiation thereof, and
- vector spaces and inner products thereon.

Therefore you should review chapters 1, 2, 3, 4, 7, and as much of chapter 8 as is comfortable, *right now*.

Note that within chapter 8 I regard only sections 8.1, 8.2, 8.3, 8.4, 8.9, 8.10, and 8.15 as review. These are all covered by any course in linear algebra, however shallow. Nonetheless I will spend lots of time on all of chapter 8, though I will emphasize the non-review sections.

You may want to read chapter 9 at this time as it strongly motivates Fourier series. I do not regard chapter 9 as review. I have not decided how much of chapter 9 to cover.

II. Do exercises

**2.6, 2.36, 2.39, 2.41, 2.42, 2.43, 3.2,  
12.1, 12.4, 12.5, 12.9, 12.11, 12.19, 12.21, 12.24.**