

Math 325  
Spring, 2001

**ASSIGNMENT 8, due Friday, April 6**

Read Boyce and DiPrima, Sections 10.2-10.4

Do p. 555 #1,6,9,14,20,22,27,28, p. 562 #4,8,18, p. 570 #17,18,21,22,35,36.

*Hint:* Problems 35 and 36 on page 570 should be in section 10.3.

Also, for p. 556 #14 (taking  $L = 1$ ) use Maple or Matlab to plot the function and the  $N$ th partial sum of the Fourier series for  $N = 2, 5, 10, 20, 50$ . Where does the series converge to the function? What does it converge to where it does not converge to the function?

Find the Fourier series of  $f(x) = \sin^2(x)$ ,  $-\pi \leq x \leq \pi$ .

Also, on p. 570 #17,18 and #21,22 (with  $L = \pi$ ) use Maple or Matlab to plot the function and the partial sums of the Fourier series for  $m \leq N$  where  $N = 2, 5, 10, 20$ . Compare the corresponding plots.