



PARTIAL DIFFERENTIAL EQUATIONS  
SPRING 2012

ASSIGNMENT 5  
DUE FEBRUARY 21

**Exercise 1.** Textbook exercise 2.6.1. Notice that if  $g$  is the function of Example 2.6.1 (also discussed in class), and  $h$  is the same function with  $a$  replaced by  $-a$ , then the  $f$  in this problem is a linear combination of  $g$  and  $h$ . You can use this observation to find the Fourier series of  $f$  via existing series, and thereby avoid using the integral formulas.

**Exercise 2.** Textbook exercise 2.6.3. As with the previous exercise, by appropriately modifying the parameter  $a$  in Example 2.6.1, one can realize the function in question as a linear combination of functions with known Fourier series.

**Exercise 3.** Textbook exercise 2.6.5. No integral computations should be needed.

**Exercise 4.** Textbook exercise 2.6.7.

**Exercise 5.** Textbook exercise 2.6.18.