Course 2E01 2015 (SF Engineers & MSISS & MEMS)

Sheet9

Due: at the end of the tutorial

Exercise 1

Identify even or odd functions and find their Fourier series for the period $-1 \le x \le 1$:

(i) f(x) = 2x;(ii) $f(x) = -x^2.$

Exercise 2

Use Fourier series to find a solution of the equation

$$y''(x) - y(x) = a(x),$$

where a(x) = 2x for $-1 \le x \le 1$.

Exercise 3

Find the Fourier integral representation of the function

$$f(x) = \begin{cases} x \text{ if } |x| \le 1\\ 0 \text{ if } |x| > 1. \end{cases}$$