Course 2E2 2008-09 (SF Engineers & MSISS & MEMS)

S h e e t   11

Due: at the end of the tutorial

Exercise 1

Which systems of functions are orthogonal with respect to the inner product $\langle f, g \rangle = \int_{-\pi}^{\pi} f(x)g(x)dx$?

  (i) $\{1, x\}$;

 (ii) $\{1, (x^2 - \frac{\pi^2}{3})\}$;

(iii) $\{1, x, (x^2 - \frac{\pi^2}{3})\}$.