Course 2E02 2012 (SF Engineers & MSISS & MEMS)

S h e e t 8

Due: at the end of the tutorial

Exercise 1

Use the solution of Exercise 3 in Sheet 7 to find a matrix P that diagonalizes each matrix A there and determine the corresponding diagonal matrix $D = P^{-1}AP$.

Exercise 2

Find the Fourier series of the function

$$f(x) = \begin{cases} -1 \text{ if } -\pi \leq x < 0 \\ 2 \text{ if } 0 \leq x \leq \pi; \end{cases}, \quad -\pi \leq x \leq \pi.$$