ESO 208A: Computational Methods in Engineering

Tutorial 6

Eigen values by using similarity transformation

1. Estimate the Eigen values of the following matrix A by using the QR method. Perform maximum of five iterations or stop iterations when the approximate error in Eigen values becomes less than 0.01%.

$$A = \begin{bmatrix} 40 & 1 & 1 \\ 1 & 5 & 0 \\ 1 & 0 & 1 \end{bmatrix}$$

Least squares

2. Consider the equation $y = ae^{bx}$ and the measured data of x and y given in the table below. Determine the constants a and b by using the method of least squares.

x	2	4	6	8	10
y	4.077	11.084	30.128	81.897	222.62