

(QR Algorithm)

1. Use QR-algorithm without shifting, to calculate A_2 when

$$(i) A_0 = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 18 & -1 & 7 \end{bmatrix}$$

$$(ii) A_0 = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 5 & -9 & 6 \end{bmatrix}$$

$$(iii) A_0 = \begin{bmatrix} 2 & 0 & -1 \\ 2 & 3 & 2 \\ -1 & 0 & 2 \end{bmatrix}$$

2. Use QR-algorithm with shifting, to calculate the eigenvalues of following matrices when

$$(i) A_0 = \begin{bmatrix} 3 & 0 & 5 \\ 1 & 1 & 1 \\ -2 & 0 & -3 \end{bmatrix}$$

$$(ii) A_0 = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 5 & -9 & 6 \end{bmatrix}$$

$$(iii) A_0 = \begin{bmatrix} 3 & 2 & 3 \\ 2 & 6 & 6 \\ 3 & 6 & 11 \end{bmatrix}$$