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17/ENGA07/019

Petroleum Engineering
ENGA 281 (Assignment 1V)

1. Command window

2. Clear

3. clc

4. $A = [1, -2, -1, 3; 2, 3, 0, 1; 1, 0, -4, -2; 0, -1, 3, 1]$

5. $\text{lambda} = \text{eig}(A)$

i) $A =$

$$\begin{array}{cccc} 1 & -2 & -1 & 3 \\ 2 & 3 & 0 & 1 \\ 1 & 0 & -4 & -2 \\ 0 & -1 & 3 & 1 \end{array}$$

$\text{lambda} =$

$$\begin{array}{l} 2.4323 + 2.2437i \\ 2.4323 - 2.2437i \\ -1.9323 + 1.7651i \\ -1.9323 - 1.7651i \end{array}$$

ii) The system is unstable due to the fact that the eigenvalues are both positive and negative.