

Linear Algebra

1. (10%) Give the definition of matrix multiplication

2. (10%) Let $A = \begin{bmatrix} 1 & 3 \\ 2 & 0 \end{bmatrix}$, $B = \begin{bmatrix} 5 & 0 & 1 \\ 3 & -2 & 6 \end{bmatrix}$. Find AB

3. (25%) Draw a flow chart to implement matrix multiplication.

4. (25%) Write Matlab codes for matrix multiplication

5. (20%) Write some properties of matrix multiplication

6. (10%) Calculate $2A + 3B - 5C$, where

$$A = \begin{bmatrix} 1 & 3 \\ -4 & 5 \end{bmatrix}, B = \begin{bmatrix} 3 & -7 \\ 2 & 1 \end{bmatrix}, \text{ and } C = \begin{bmatrix} 0 & 2 \\ 3 & -1 \end{bmatrix}.$$