

1. For $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$, $x = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$, $y = \begin{bmatrix} y_1 \\ y_2 \end{bmatrix}$, find

(a) Ax

(b) Ay

(c) $Ax + Ay$

2. For $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$, $x = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$, $y = \begin{bmatrix} y_1 \\ y_2 \end{bmatrix}$, find

(a) $x + y$

(b) $A(x + y)$

3. For $\begin{bmatrix} a & b \\ c & d \end{bmatrix} x = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$ and scalar α , find
(a) αx

(b) $A(\alpha x)$

4. For $\begin{bmatrix} a & b \\ c & d \end{bmatrix} x = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$ and scalar α , find
(a) Ax

(b) $\alpha(Ax)$

5. Observations: