

$$(iv) \begin{bmatrix} 2 & 5 \\ -6 & 0 \\ 1 & 12 \end{bmatrix} \begin{bmatrix} 8 & -1 & 7 \\ -5 & 2 & 5 \\ 3 & 0 & 2 \end{bmatrix}$$

Since the number of columns in the first matrix, 2, does not equal the number of rows in the second matrix, 3, the two matrices have incompatible dimensions.

$$vii) \begin{bmatrix} 8 & -1 & 7 \\ -5 & 2 & 5 \\ 3 & 0 & 2 \end{bmatrix} + \begin{bmatrix} -2 & 8 & 0.5 \\ 2 & 5 & 2 \\ 0 & -9 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 6 & 7 & 7.5 \\ -3 & 7 & 7 \\ 3 & -9 & 3 \end{bmatrix}$$

$$viii) \begin{bmatrix} 8 & -1 & 7 \\ -5 & 2 & 5 \\ 3 & 0 & 2 \end{bmatrix} \times \begin{bmatrix} -2 & 8 & 0.5 \\ 2 & 5 & 2 \\ 0 & -9 & 1 \end{bmatrix} + \begin{bmatrix} 8 & 14 \\ 0.25 & 21 \end{bmatrix}$$

$$\begin{bmatrix} 8 & 14 \\ 0.25 & 21 \end{bmatrix} + \begin{bmatrix} -16 & -8 & 3.5 \\ -10 & 10 & 10 \\ 0 & 0 & 2 \end{bmatrix}$$