## **ASSIGNMENT 1**

## AI20MTECH11003

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## Question-

Find the cross product of a and b.

$$\boldsymbol{a} = \begin{pmatrix} 1 \\ -7 \\ 7 \end{pmatrix}$$

$$\boldsymbol{b} = \begin{pmatrix} 3 \\ -2 \\ 2 \end{pmatrix}$$

## Solution-

Cross Product of two vectors:

Cross product of two vectors is determined by spanning a vector into skew symmetric matrix-

$$= a \times b$$

$$= \begin{pmatrix} 0 & -a3 & a2 \\ a3 & 0 & -a1 \\ -a2 & a1 & 0 \end{pmatrix} \begin{pmatrix} 3 \\ -2 \\ 2 \end{pmatrix}$$

$$= \begin{pmatrix} 0 & -7 & -7 \\ 7 & 0 & -1 \\ 7 & 1 & 0 \end{pmatrix} \begin{pmatrix} 3 \\ -2 \\ 2 \end{pmatrix}$$

$$= \begin{pmatrix} 0 \\ 19 \\ 19 \end{pmatrix}$$