ASSIGNMENT 1
AI20MTECH11003
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Question-
Find the cross product of a and b.

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

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

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

$$= a \times b$$

$$= \begin{pmatrix} 0 & -a_3 & a_2 \\ a_3 & 0 & -a_1 \\ -a_2 & a_1 & 0 \end{pmatrix} \begin{pmatrix} 3 \\ -2 \\ 2 \end{pmatrix}$$

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

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