AI1110 Assignment-1

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Question 1(a) Find the Values of 'x' and 'y' if:

$$2\begin{pmatrix} x & 7 \\ 9 & y-7 \end{pmatrix} + \begin{pmatrix} 6 & -7 \\ 4 & 5 \end{pmatrix} = \begin{pmatrix} 10 & 7 \\ 22 & 15 \end{pmatrix}$$

Solution:

$$2\begin{pmatrix} x & 7 \\ 9 & y-7 \end{pmatrix} + \begin{pmatrix} 6 & -7 \\ 4 & 5 \end{pmatrix} = \begin{pmatrix} 10 & 7 \\ 22 & 15 \end{pmatrix} \quad (1)$$

$$2\begin{pmatrix} x & 7 \\ 9 & y-7 \end{pmatrix} = \begin{pmatrix} 10 & 7 \\ 22 & 15 \end{pmatrix} - \begin{pmatrix} 6 & -7 \\ 4 & 5 \end{pmatrix} \quad (2)$$

$$\implies \begin{pmatrix} 2x & 14 \\ 18 & 2y-14 \end{pmatrix} = \begin{pmatrix} 4 & 14 \\ 18 & 10 \end{pmatrix} \quad (3)$$

By comparing every element of both matrix we get,

$$2x = 4 \quad (4)$$

$$\implies x = 2 \quad (5)$$

$$2y - 14 = 10 \quad (6)$$

$$\implies y = 12 \quad (7)$$

$\therefore$ From equation 5 and 7, $x = 2$ and $y = 12$