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:

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

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

$$\begin{pmatrix} 2x & 14 \\ 18 & 2y-14 \end{pmatrix} = \begin{pmatrix} 4 & 14 \\ 18 & 10 \end{pmatrix}$$

By comparing every element of both matrix we get,

$$2x = 4$$
$$x = \frac{4}{2} \tag{1}$$
$$x = 2$$

$$2y - 14 = 10$$
$$2y = 24 \tag{2}$$
$$y = 12$$

$\therefore$ From equation 1 and 2, $x = 2$ and $y = 12$