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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:

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

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

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

By comparing every element of both matrix we get,

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

$$\implies x = 2 \tag{5}$$

$$2y - 14 = 10 \tag{6}$$

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

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