1-1.3-2

AI24BTECH11017-Maanya Sri

Question:

The coordinates of the three consecutive vertices of a parallelogram $ABCD$ are $\mathbf{A}(1,3), \mathbf{B}(-1,2)$, and $\mathbf{C}(2,5)$.Find the coordinates of the fourth vertex **D**. (10,2021)

Sol: Given $A=\begin{pmatrix}1\\3\end{pmatrix}$, $B=\begin{pmatrix}-1\\2\end{pmatrix}$, and $C=\begin{pmatrix}2\\5\end{pmatrix}$

Let $A = 1i + 3jB = -1i + 2jC = 2i + 5j$ In a parallelogram $ABCD, D$ can be written as $D = A + C - B = 1i + 3j + 2i + 5j - (-1i + 2j) = 4i + 6j$ Hence $D = \begin{pmatrix}4\\6\end{pmatrix}$