

1.3.7

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Question: Find the coordinates of the vertex A of an ABCD parallelogram whose three vertices are given as B(0,0),C(3,0), and D(0,4). (10,2024)

Solution: From the given information:

$$\mathbf{B} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \mathbf{C} = \begin{pmatrix} 3 \\ 0 \end{pmatrix}, \mathbf{D} = \begin{pmatrix} 0 \\ 4 \end{pmatrix} \quad (1)$$

In a parallelogram,

$$\mathbf{A} = \mathbf{B} + \mathbf{D} - \mathbf{C} \quad (2)$$

$$= \begin{pmatrix} 0 \\ 0 \end{pmatrix} + \begin{pmatrix} 0 \\ 4 \end{pmatrix} - \begin{pmatrix} 3 \\ 0 \end{pmatrix} \quad (3)$$

$$= \begin{pmatrix} -3 \\ 4 \end{pmatrix} \quad (4)$$

Therefore, Co-ordinates of A(-3,4)

From the figure it is clearly verified that the theoretical solution matches with the computational solution.

