1.3.7

AI25BTECH11028 -R.Manohar

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:

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

In a paralleleogram,

$$\mathbf{A} = \mathbf{B} + \mathbf{D} - \mathbf{C} \tag{2}$$

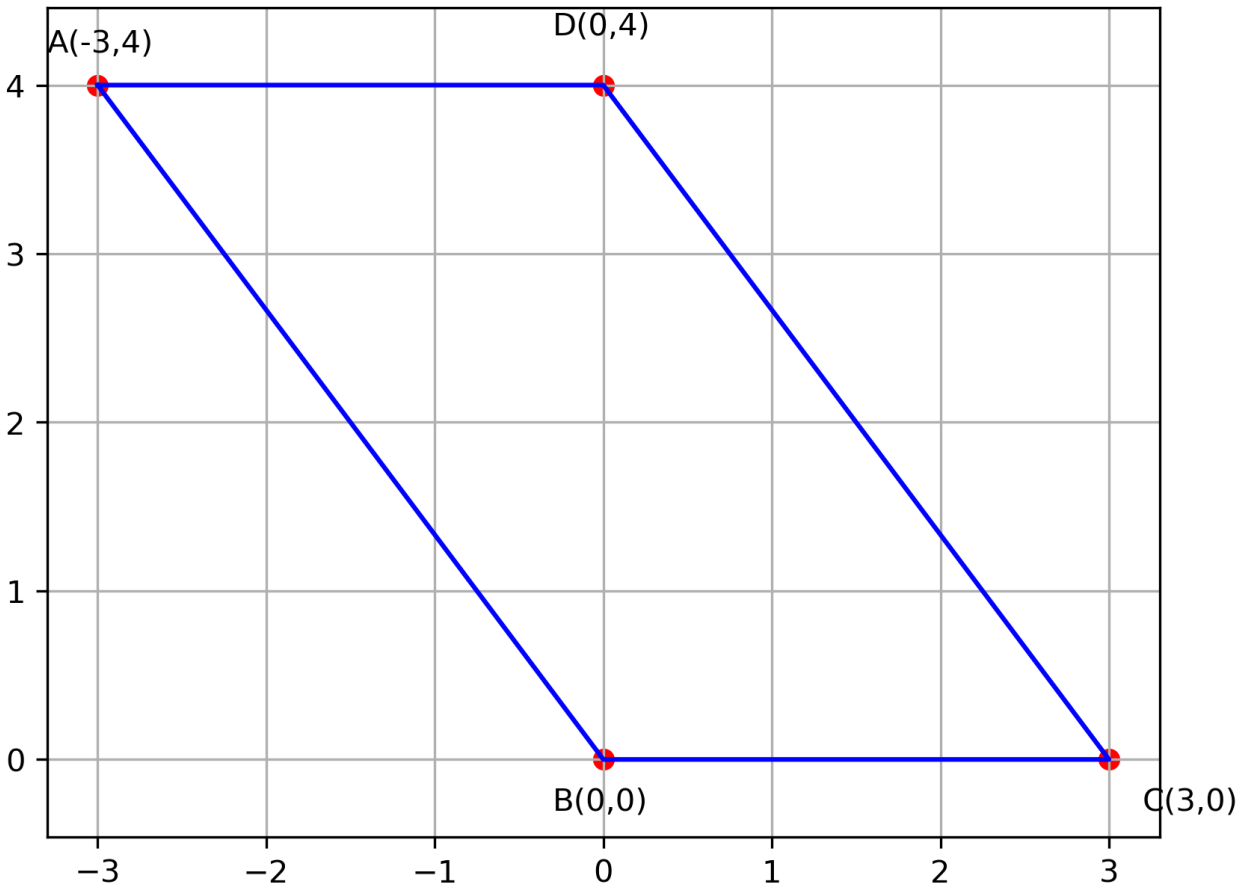
$$= \begin{pmatrix}0\\0\end{pmatrix} + \begin{pmatrix}0\\4\end{pmatrix} - \begin{pmatrix}3\\0\end{pmatrix} \tag{3}$$

$$= \begin{pmatrix}-3\\4\end{pmatrix} \tag{4}$$

Therefore,Co-ordinates of

$$\mathbf{A} = \begin{pmatrix}-3\\4\end{pmatrix} \tag{5}$$

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


A(-3,4)
D(0,4)
B(0,0)
C(3,0)
4
3
2
1
0
−3
−2
−1
0
1
2
3