

1-1.2-11

EE24BTECH11027 - satwikagv

Question:

If the points **A** (6, 1), **B** (8, 2), **C** (9, 4), **D** (p , 3) are the vertices of a parallelogram, taken in order, find the value of p .

Solution:

If $ABCD$ is a parallelogram with $AB \parallel CD$,

$$B - A = C - D \quad (0.1)$$

$$\begin{pmatrix} 8 \\ 2 \end{pmatrix} - \begin{pmatrix} 6 \\ 1 \end{pmatrix} = \begin{pmatrix} 9 \\ 4 \end{pmatrix} - \begin{pmatrix} p \\ 3 \end{pmatrix} \quad (0.2)$$

$$\begin{pmatrix} 2 \\ 1 \end{pmatrix} = \begin{pmatrix} 9 - p \\ 1 \end{pmatrix} \quad (0.3)$$

$$9 - p = 2 \quad (0.4)$$

$$p = 7 \quad (0.5)$$

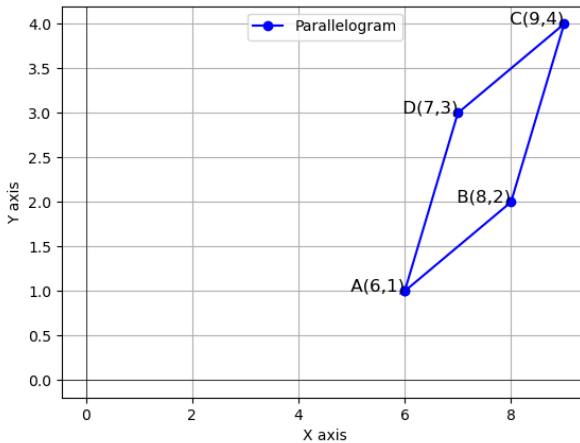


Fig. 0.1: parallelogram