

# 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:**

Given the points are the vertices of a parallelogram.

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

$$\mathbf{B-A=C-D}$$

(0.1)

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

$$\begin{pmatrix} 2 \\ 1 \end{pmatrix} = \begin{pmatrix} 9-p \\ 1 \end{pmatrix}$$

$$9-p=2$$

$$p=7$$

