

Question-1-1.6-8

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Question:

If the three points **A** ($X, -1$), **B** ($2, 1$), **C** ($4, 5$) are collinear, find the value of X

Solution:

point	Coordinates
A	$(X, -1)$
B	$(2, 1)$
C	$(4, 5)$

TABLE 0: variables used

Construct a Matrix for the above points

$$M = \begin{pmatrix} X & -1 & 1 \\ 2 & 1 & 1 \\ 4 & 5 & 1 \end{pmatrix} \quad (0.1)$$

The Determinant of the matrix is 0

$$Det = X(-4) + 1(-2) + 1(6) = 0 \quad (0.2)$$

$$\Rightarrow X = 1 \quad (0.3)$$

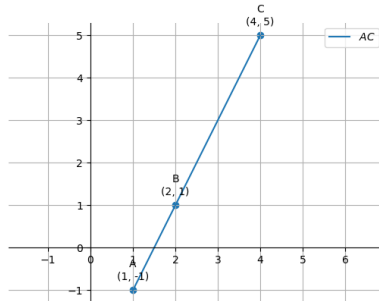


Fig. 0.1: Line AC