

Question-1-1.6-8

EE24BTECH11038 - MALAKALA BALA SUBRAHMANYA ARAVIND

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

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

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

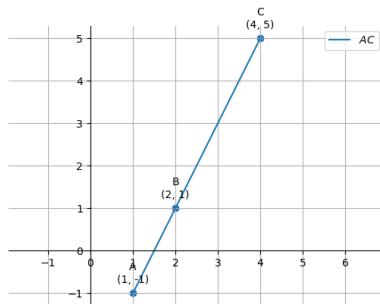


Fig. 0.1: Line AC