

1-1.5-32

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Question:

Find the ratio in which the line segment joining the points $(1, -3)$ and $(4, 5)$ is divided by X axis.

Solution:

points	values
A	$\begin{pmatrix} 1 \\ -3 \end{pmatrix}$
B	$\begin{pmatrix} 4 \\ 5 \end{pmatrix}$
C	$\begin{pmatrix} x \\ 0 \end{pmatrix}$

TABLE 0: values of the geometrical points in given question

If C divides AB in the ratio $k : 1$

$$C = \frac{kB + A}{k + 1} \quad (0.1)$$

Substituting A ,B and C in the formula

$$\begin{pmatrix} \frac{4.k+1}{k+1} \\ \frac{k.5-3}{k+1} \end{pmatrix} = \begin{pmatrix} x \\ 0 \end{pmatrix} \quad (0.2)$$

$$\frac{k.5 - 3}{k + 1} = 0 \quad (0.3)$$

$$k = \frac{3}{5} = 3 : 5 \quad (0.4)$$

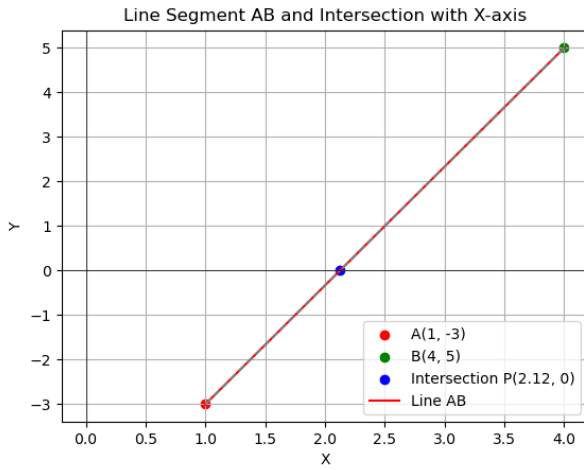


Fig. 0.1: plot for line