1-1.5-29

EE24BTECH11005 - Arjun Pavanje

Question:
The coordinates of the point **P** dividing the line segment joining the point **A**(1,3) and **B**(4,6) in the ratio 2:1 are (10, 2012)
Solution:

Variable	Description
P	Point to be found
A	$(1,3)$ point
B	$(4,6)$ point
k	ratio in which **P** divides **AB**

TABLE I: Variables Used

If **P** divides **AB** in the ratio $k:1$,

$$\mathbf{P} = \frac{k\mathbf{B} + \mathbf{A}}{k+1} \tag{1}$$

$$\mathbf{P} = \frac{\begin{pmatrix} 4k+1 \\ 6k+3 \end{pmatrix}}{k+1} \tag{2}$$

here, $k = 2$, so putting the k we get

$$\mathbf{P} = \begin{pmatrix} 3 \\ 5 \end{pmatrix} \tag{3}$$

The coordinates of the required point **P** are

$$\begin{pmatrix} 3 \\ 5 \end{pmatrix} \tag{4}$$

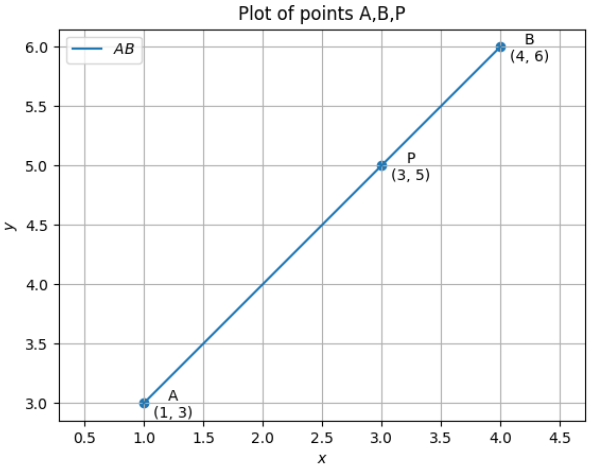

Fig. 1: Plot of the points A,B,P