1.4.13

EE24BTECH11021 - Eshan Ray

Question:

If a and b are the position vectors of A and B, respectively, find the position vector of a point C in BA produced such that $BC = 1 \cdot 5BA$.

Solution:

Variable	Description	Formula
$B(b)$	Position vector of first point	–
$A(a)$	Position vector of second point	–
C	External point in Line AB	–
k	ratio in which C divides the line AB externally	$\frac{kA-B}{k-1}$

TABLE 0
INPUT PARAMETERS

$$C = \frac{kA - B}{k - 1} \quad \left(where, k = \frac{3}{1}\right) \tag{1}$$

$$\implies C = \frac{3A - B}{3 - 1} \tag{2}$$

$$\implies C = \frac{3a - b}{2} \tag{3}$$

$$\implies C = 1 \cdot 5a - 0 \cdot 5b \tag{4}$$

So, position vector of C is $1 \cdot 5a - 0 \cdot 5b$.

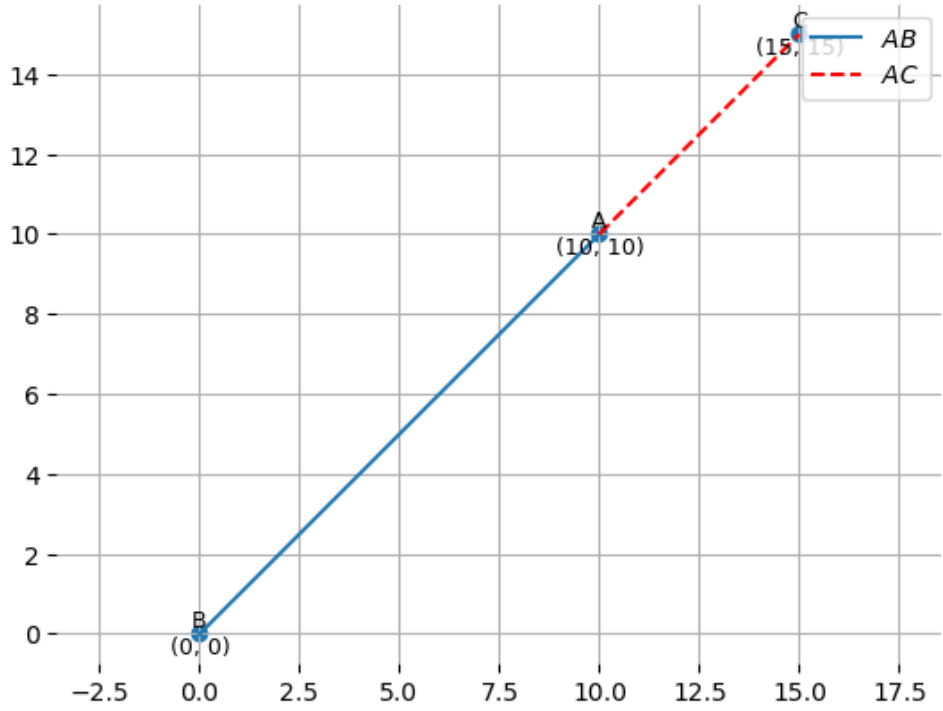

Fig. 0. B(0,0) and A(10,10)