# 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 $BC = 1.5BA$.

**Solution:** Point $C$ divides the line segment $BA$ in the ratio $3:1$ externally, $\therefore$ using section formula we get,

$$C = \frac{kA - B}{k - 1}$$
$$\left(where, k = \frac{3}{1}\right)$$
$$C = \frac{3A - B}{3 - 1}$$
$$C = \frac{3a - b}{2}$$
$$C = 1.5a - 0.5b$$

So, the position vector of $C$ is $1.5a - 0.5b$.

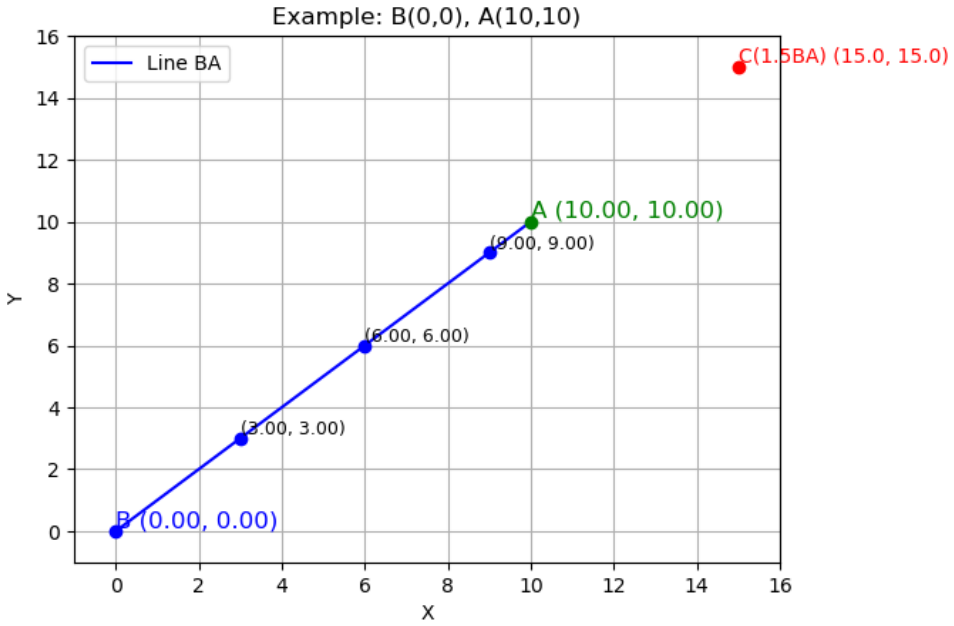


Fig. 0. Coordinates of C