

Let P be the point at which

(i) AB intersect y-axis

Let $AP : PB = m : n$

$$x = \frac{mx_1 + nx_2}{m + n}$$

and

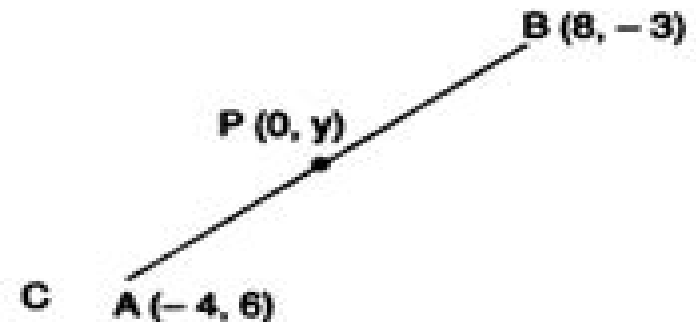
$$y = \frac{my_1 + ny_2}{m + n}$$

$$0 = \frac{m \cdot 8 + n(-4)}{m + n}$$

$$\frac{8m - 4n}{m + n} = 0$$

$$\Rightarrow 8m = 4n$$

$$\therefore m : n = 1 : 2$$



(ii) $y = \frac{my_2 + ny_1}{m + n}$

$$= \frac{1 \times (-3) + 2 \times 6}{1 + 2}$$

Using the above ratio, $y = \frac{-3 + 12}{1 + 2} = 3$

$\therefore$ Point of P be (0, 3)

(iii) $AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
 $= \sqrt{(-4 - 8)^2 + (6 + 3)^2}$
 $= \sqrt{144 + 81} = 15 \text{ units.}$

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