

1.5.38

AI24BTECH11019-KOTHA PRATHEEK REDDY

Question:

Find the ratio in which the Y axis divides the line segment joining the points $(6, -4)$ and $(-2, -7)$. Also find the point of intersection.

Solution:

Let $A = (6, -4)$ and $B = (-2, -7)$

Let the line segment joining A and B meet the Y-axis at $C(0, y)$

$$C = \frac{kA + B}{k + 1} \quad (0.1)$$

equating the x coordinates, we get

$$0 = \frac{6k - 2}{k + 1} \quad (0.2)$$

$$k = \frac{1}{3} \quad (0.3)$$

$$y = \frac{-4k - 7}{k + 1} \quad (0.4)$$

On solving we get,

$$y = -\frac{25}{4} \quad (0.5)$$

$$C = \left(0, -\frac{25}{4}\right) \quad (0.6)$$

Point	Coordinates
A	$(6, -4)$
B	$(-2, -7)$
C	$\left(0, -\frac{25}{4}\right)$

TABLE 0: Coordinates

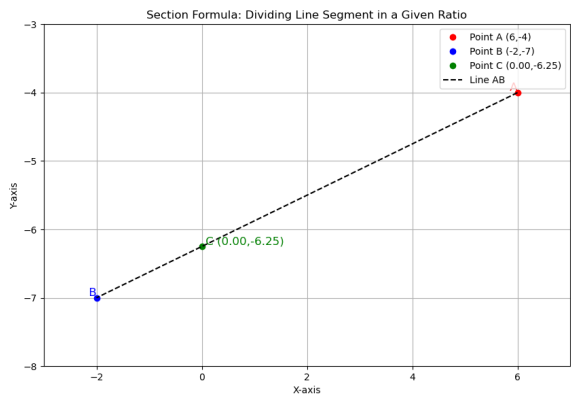


Fig. 0.1: Line joining A and B