



Co-Ordinate Geometry Ex 14.3 Q47

Answer :

Let the co-ordinates of point A be (x, y) .

Centre lies on the mid-point of the diameter. So applying the mid-point formula we get,

$$\frac{x+1}{2} = 2$$

$$x = 3$$

Similarly,

$$\frac{y+4}{2} = -3$$

$$y = -10$$

So the co-ordinates of A are $(3, -10)$

Co-Ordinate Geometry Ex 14.3 Q48

Answer :

It is given that $\frac{AP}{PB} = \frac{k}{1}$.

So, P divides the line segment joining the points A(3, -5) and B(-4, 8) in the ratio $k : 1$.

Using the section formula, we get

$$\text{Coordinates of P} = \left(\frac{-4k+3}{k+1}, \frac{8k-5}{k+1} \right)$$

Since P lies on the line $x + y = 0$, so

$$\frac{-4k+3}{k+1} + \frac{8k-5}{k+1} = 0$$

$$\Rightarrow \frac{-4k+3+8k-5}{k+1} = 0$$

$$\Rightarrow 4k - 2 = 0$$

$$\Rightarrow k = \frac{1}{2}$$

Hence, the value of k is $\frac{1}{2}$.

Co-Ordinate Geometry Ex 14.3 Q49

Answer :

Suppose P(-1, y) divides the line segment joining A(-3, 10) and B(6 -8) in the ratio $k : 1$.

Using section formula, we get

$$\text{Coordinates of P} = \left(\frac{6k-3}{k+1}, \frac{-8k+10}{k+1} \right)$$

$$\therefore \left(\frac{6k-3}{k+1}, \frac{-8k+10}{k+1} \right) = (-1, y)$$

$$\Rightarrow \frac{6k-3}{k+1} = -1 \text{ and } y = \frac{-8k+10}{k+1}$$

Now,

$$\frac{6k-3}{k+1} = -1$$

$$\Rightarrow 6k - 3 = -k - 1$$

$$\Rightarrow 7k = 2$$

$$\Rightarrow k = \frac{2}{7}$$

So, P divides the line segment AB in the ratio 2 : 7.

Putting $k = \frac{2}{7}$ in $y = \frac{-8k+10}{k+1}$, we get

$$y = \frac{-8 \times \frac{2}{7} + 10}{\frac{2}{7} + 1} = \frac{-16 + 70}{2 + 7} = \frac{54}{9} = 6$$

Hence, the value of y is 6.

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