

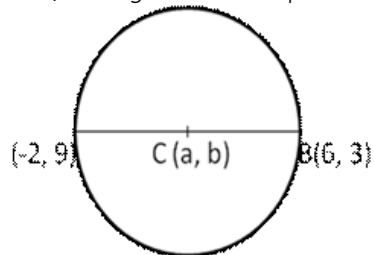


Exercise 16B

Question 11:

Let $A(-2, 9)$ and $B(6, 3)$ be the two points of the given diameter AB and let $C(a, b)$ be the center of the circle.

Then, clearly C is the midpoint of AB



By the midpoint formula of the co-ordinates,

Co - ordinates of C are $\left(\frac{-2+6}{2}, \frac{9+3}{2} \right)$

But the co - ordinates of C are (a, b)

$$\therefore \frac{-2+6}{2} = a \text{ and } \frac{9+3}{2} = b$$

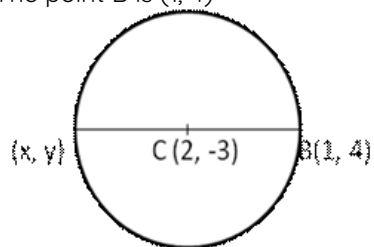
$$a = 2 \text{ and } b = 6$$

Hence, the required point $C(2, 6)$.

Question 12:

A, B are the end points of a diameter. Let the coordinates of A be (x, y) .

The point B is $(1, 4)$



The center $C(2, -3)$ is the midpoint of AB .

$$\therefore \frac{x+1}{2} = 2 \Rightarrow x = 3$$

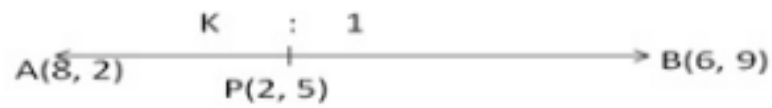
$$\frac{y+4}{2} = -3 \Rightarrow y = -10$$

The point A is $(3, -10)$.

Question 13:

Let P divided the join of $A(8, 2), B(-6, 9)$ in the ratio $k : 1$

By section formula, the coordinates of p are



$$\left(\frac{-6k + 8}{k + 1}, \frac{9k + 2}{k + 1} \right)$$

$$\therefore \frac{-6k + 8}{k + 1} = 2 \text{ and } \frac{9k + 2}{k + 1} = 5$$

$$\Rightarrow -6k + 8 = 2k + 2 \text{ and } 9k + 2 = 5k + 5$$

$$-8k = -6 \text{ and } 4k = 3$$

$$k = \frac{-6}{-8} = \frac{3}{4} \text{ and } k = \frac{3}{4}$$

$$\Rightarrow k = \frac{3}{4} \text{ in each case}$$

Hence, the required ratio of $(\frac{3}{4} : 1)$ which is $(3 : 4)$

***** END *****