Coordinate Geometry

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Class 10^{th} Maths - Chapter 7

This is Problem-7 from Exercise 7.4

1. Find the coordinates of a point A, where AB is the diameter of a circle whose centre is (2, -3) and B is (1, 4).

Solution: :

$$\mathbf{C} = \frac{m\mathbf{B} + n\mathbf{A}}{m+n} \tag{1}$$

$$\mathbf{C}m + \mathbf{C}n = m\mathbf{B} + n\mathbf{A} \tag{2}$$

$$\frac{\mathbf{C}m + \mathbf{C}n - \mathbf{m}B}{n} = \mathbf{A} \tag{3}$$

$$\tag{4}$$

$$\mathbf{C} = \begin{pmatrix} 2 \\ -3 \end{pmatrix} \tag{5}$$

$$\mathbf{B} = \begin{pmatrix} 1 \\ 4 \end{pmatrix} \tag{6}$$

$$\tag{7}$$

By taking m=1 and n=1

$$so, \tag{8}$$

$$\mathbf{A} = \frac{\begin{pmatrix} 2 \\ -3 \end{pmatrix} + \begin{pmatrix} 2 \\ -3 \end{pmatrix} - \begin{pmatrix} 1 \\ 4 \end{pmatrix}}{1} \tag{9}$$

$$\mathbf{A} = \begin{pmatrix} 3 \\ -10 \end{pmatrix} \tag{10}$$

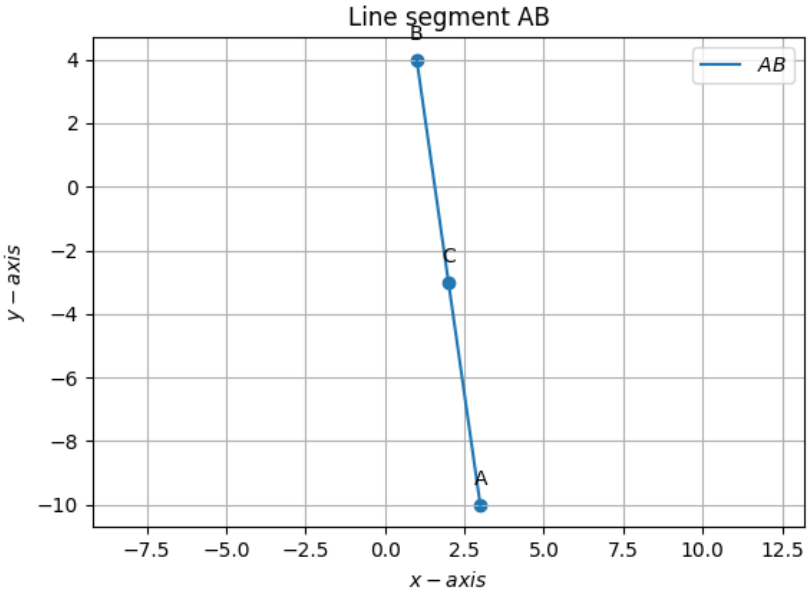

Figure 1: Line segment AB