EE24BTECH11012 - Bhavanisankar G S

QUESTION

The mid-point of segment AB is the point P 0,4 . If the coordinates of B are -2,3 then coordinates of A are (10, 2011)

SOLUTION

Given:

Variable name	Description
Formula	
A	The point in 2-D plane whose coordinates are to be found.
В	The point in 2-D plane with coordinates -2,3
M	The midpoint of the line-segment AB with coordinates 0,4

TABLE 0: Variables used

Coordinates of B = -2.3

Coordinates of midpoint (sayM) = 0.4

To Find:

Coordinates of A.

We know that the mid-point of two points, which can be treated as vectors A and B is

$$\mathbf{M} = \frac{\mathbf{A} + \mathbf{B}}{2}$$

$$\Rightarrow \mathbf{A} = 2\mathbf{M} - \mathbf{B}$$

$$= 2 {0 \choose 4} - {-2 \choose 3}$$

$$= {0 \choose 8} - {-2 \choose 3}$$

$$= {2 \choose 5}$$

$$(0.1)$$

Hence, the coordinates of point \mathbf{A} are 2,5.

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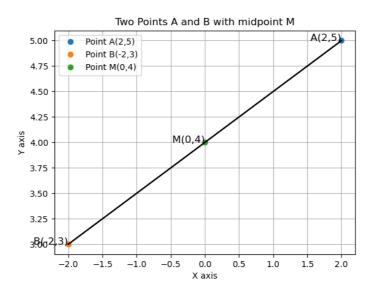


Fig. 0.1: A plot of the given question.