

Coordinate-Geometry

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10th Maths - Chapter 7

This is Problem-1 from Exercise 7.2

1. Find the coordinates of the point which divides the join of $(-1, 7)$ and $(4, -3)$ in the ratio $2 : 3$

Solution:

Given,

$$(A) = \begin{pmatrix} -1 \\ 7 \end{pmatrix}$$

$$(B) = \begin{pmatrix} 4 \\ -3 \end{pmatrix}$$

$$m_1 : m_2 = 2 : 3$$

$$= (P) = \frac{m_1 B + m_2 A}{m_1 + m_2} \quad (1)$$

$$= \frac{2 \begin{pmatrix} 4 \\ -3 \end{pmatrix} + 3 \begin{pmatrix} -1 \\ 7 \end{pmatrix}}{2 + 3} \quad (2)$$

$$= \frac{\begin{pmatrix} 8 - 3 \\ -6 + 21 \end{pmatrix}}{2 + 3} \quad (3)$$

$$= \begin{pmatrix} \frac{8-3}{2+3} \\ \frac{-6+21}{2+3} \end{pmatrix} \quad (4)$$

$$= \begin{pmatrix} \frac{5}{5} \\ \frac{15}{5} \end{pmatrix} \quad (5)$$