

1.5.8

EE25BTECH11020 - Darsh Pankaj Gajare

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Question:

Find the ratio in which **P** (4, 5) divides the line segment joining **A** (2, 3) and **B** (7, 8).

Solution:

Point	matrix
A	$\begin{pmatrix} 2 \\ 3 \end{pmatrix}$
B	$\begin{pmatrix} 7 \\ 8 \end{pmatrix}$
P	$\begin{pmatrix} 4 \\ 5 \end{pmatrix}$

Table: Given Data

$$k = \frac{(\mathbf{A} - \mathbf{P})^T (\mathbf{P} - \mathbf{B})}{\|\mathbf{P} - \mathbf{B}\|^2} \quad (0.1)$$

Substituting values,

$$k = \frac{(-2 \quad -2) \begin{pmatrix} -3 \\ -3 \end{pmatrix}}{\| \begin{pmatrix} -3 \\ -3 \end{pmatrix} \|^2} = \frac{2}{3} \quad (0.2)$$



