

# 1.10.6

AI24BTECH11031 - Shivram S

## Question:

Find the unit vector in the direction of  $PQ$ , where  $\mathbf{P}$  and  $\mathbf{Q}$  have coordinates  $(5, 0, 8)$  and  $(3, 3, 2)$ , respectively.

## Solution:

Given that

$$\mathbf{P} = \begin{pmatrix} 5 \\ 0 \\ 8 \end{pmatrix}, \mathbf{Q} = \begin{pmatrix} 3 \\ 3 \\ 2 \end{pmatrix}$$

The unit vector in the direction of  $PQ$  is

$$\frac{\mathbf{Q} - \mathbf{P}}{\|\mathbf{Q} - \mathbf{P}\|} = \frac{1}{7} \begin{pmatrix} -2 \\ 3 \\ -6 \end{pmatrix}$$

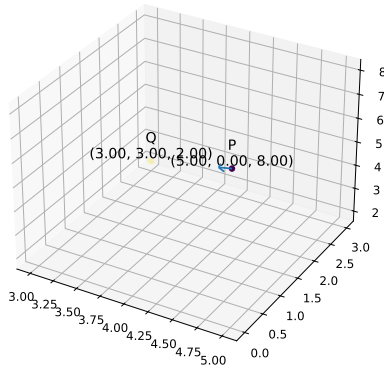


Fig. 0.1: Unit vector in the direction of  $PQ$