

1.2.3

AI25BTECH11002 - Ayush Sunil Labhade

September 2, 2025

Question:

Find the sum of the vectors $\mathbf{a} = \hat{i} + 2\hat{j} + \hat{k}$, $\mathbf{b} = -2\hat{i} + 4\hat{j} + 5\hat{k}$
 $\mathbf{c} = \hat{i} - 6\hat{j} - 7\hat{k}$.

Solution:

Point	Vector
a	$\begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$
b	$\begin{pmatrix} -2 \\ 4 \\ 5 \end{pmatrix}$
c	$\begin{pmatrix} 1 \\ 6 \\ -7 \end{pmatrix}$

Table: Given Data

$$\mathbf{sum} = (\mathbf{a} + \mathbf{b} + \mathbf{c}) \quad (0.1)$$

Substituting values,

$$\mathbf{sum} = \begin{pmatrix} 0 \\ -4 \\ -1 \end{pmatrix} \quad (0.2)$$

Vectors A, B, C and their resultant R

