1.2.3

AI25BTECH11002 - Ayush Sunil Labhade

September 2, 2025

Question:

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

Solution:

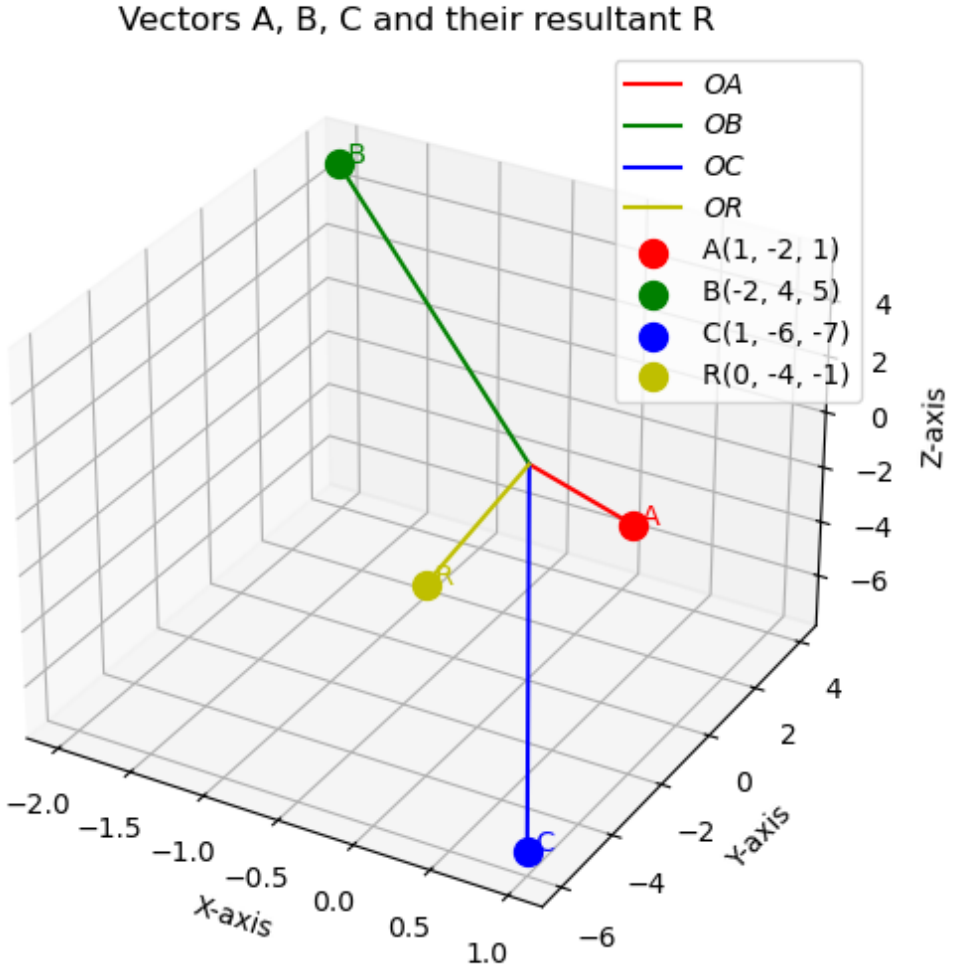
Point	Vector
a	$\begin{pmatrix} 1 \\ -2 \\ 1 \end{pmatrix}$
b	$\begin{pmatrix} -2 \\ 4 \\ 5 \end{pmatrix}$
c	$\begin{pmatrix} 1 \\ -6 \\ -7 \end{pmatrix}$

Table: Given Data

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

Substituting values,

$$\mathbf{sum} = \begin{pmatrix} 0 \\ -4 \\ -1 \end{pmatrix} \tag{0.2}$$


Vectors A, B, C and their resultant R
OA
OB
OC
OR
A(1, -2, 1)
B(-2, 4, 5)
C(1, -6, -7)
R(0, -4, -1)
A
B
C
R
X-axis
Y-axis
Z-axis
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
−6
−4
−2
0
2
4
4
2
0
−2
−4
−6