1-1.2-3

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Question:
Find the sum of the vectors $\mathbf{a} = \hat{i} - 2\hat{j} + \hat{k}$, $\mathbf{b} = -2\hat{i} + 4\hat{j} + 5\hat{k}$ and $\mathbf{c} = \hat{i} - 6\hat{j} - 7\hat{k}$.
Solution: The sum of three vectors is $\mathbf{a} + \mathbf{b} + \mathbf{c} =$

$$
\begin{pmatrix} 1 \\ -2 \\ 1 \end{pmatrix} + \begin{pmatrix} -2 \\ 4 \\ 5 \end{pmatrix} + \begin{pmatrix} 1 \\ -6 \\ -7 \end{pmatrix} = \begin{pmatrix} 0 \\ -4 \\ -1 \end{pmatrix} \tag{0.1}
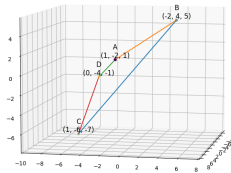$$

Hence , $\mathbf{a} + \mathbf{b} + \mathbf{c} = -4\hat{j} - \hat{k}$

Fig. 0.1: Sum of vectors a, b and c