Linear Combination:-

A vector w is called a linear combination of the vector $V_1, V_2, \ldots V_n$ if it can be expressed in the form

$$W = K_1 V_1 + K_2 V_2 + \cdots + K_n V_n$$

where $K_1, K_2, \ldots K_n$ are scalar.

① Every vector $V(a, b, c)$ in R^3 is expressed as a linear combination of the standerd basis vector.

$$i = (1, 0, 0) , \quad j = (0, 1, 0) , \quad K = (0, 0, 1)$$

Solution

$$V = (a, b, c)$$

$$\underline{V = (a)(1, 0, 0) + (b)(0, 1, 0) + (c)(0, 0, 1)}$$

$$\boxed{V = ai + bj + ck}$$