

Definition: Linear Independence

A set of vectors $\{v_1, v_2, \dots, v_{n-1}, v_n\}$ is called linearly independent if the only choice of $a_1, a_2, \dots, a_n \in \mathbb{F}$, that makes

$$a_1\vec{v}_1 + a_2\vec{v}_2 + \cdots + a_n\vec{v}_n = \vec{0}$$

hold, is $a_1 = a_2 = \cdots = a_n = 0$. We define the empty set to be linearly independent