

Definitions

An example from linear algebra

Definition: A set $\{v_1, \dots, v_n\}$ of elements of a vector space V is called *linearly independent* if, for any set a_1, \dots, a_n of scalars, if $\sum_{i=1}^n a_i v_i = 0$ then $a_i = 0$ for all $i = 1, \dots, n$. A set of vectors that is not linearly independent is called *linearly dependent*.

Theorem: The set of vectors $\{(1, 3), (2, 2)\}$ is linearly independent in \mathbb{R}^2 .

Theorem: The set of vectors $\{(1, 1, 1), (2, 2, 2), (1, 3, 2)\}$ is linearly dependent in \mathbb{R}^3 .