



SCALAR MULTIPLE SETS

Why

Definition

The *scalar multiple* of a subset of a vector space *by* a given scalar is the set of all vectors which are the scalar product of the given scalar and the vector.

The *symmetric reflection* of a subset of a vector space is the scalar multiple by the additive inverse of the field. A subset of a vector space is *symmetric* if it is its own symmetric reflection.

Notation

Let (V, \mathbf{F}) be a vector space. Let $M \subset V$ and $\lambda \in \mathbf{F}$. The scalar multiple of M by λ is the set

$$\{\lambda x \mid x \in M\},$$

which we denote by λM .

The symmetric reflection of M is $(-1)M$ which we denote by $-M$. M is symmetric if $M = -M$.

