

## SCALED SETS

## Why

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## 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  $\lambda$  is the set

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

which we denote by  $\lambda M$ .

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

<sup>&</sup>lt;sup>1</sup>Future editions will include.

