



**Why****Definition**

The *translate* of a subset of a vector space *by* a given vector is the set of all vectors which are the sum of a vector in the subset with the given vector.

**Notation**

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

$$\{x + a \mid x \in M\},$$

which we denote by  $M + a$ .

