



## Definition

The *span* of a finite set of vectors  $v_1, \dots, v_k \in \mathbf{R}^n$  is the set of all linear combinations of the vectors  $v_1, \dots, v_k$ .

More generally, given a set  $A \subset \mathbf{R}^n$  the span of  $A$  is the set of all linear combinations formed from finite subsets of  $A$ . This is sometimes also called the *linear hull* of  $A$ .

The span of a set of vectors is a subspace.

## Notation

We denote the span of  $v_1, \dots, x_k \in \mathbf{R}^d$  by

$$\text{span}(\{v_1, \dots, v_k\})$$

Other notation in use, in particular when we are dealing with the span of a set  $A \subset \mathbf{R}^d$  is  $\text{lin } A$ .



