

**Source:**

## 1 | **Definitions**

### 1.1 | **affine subset**

An affine subset of a vector space  $V$  is of the form  $U + v$  where  $U \subseteq V$  and  $v \in V$ .

### 1.2 | **product space**

The product of some vector spaces  $V_1 \times \cdots \times V_n$  is the set of lists of vectors with one from each respective space:

$$\{(v_1, \dots, v_n) | v_1 \in V_1, \dots, v_n \in V_n\}$$

### 1.3 | **quotient space**