



**Definition**

A *polyhedron* is a set  $P \subset \mathbf{R}^n$  for which there exists  $A \in \mathbf{R}^{m \times n}$  and  $b \in \mathbf{R}^m$  satisfying

$$P = \{x \in \mathbf{R}^n \mid Ax \leq b\}.$$

In other words, a polyhedron is an intersection of finitely many halfspaces.

A polyhedron  $P$  is *polytope* if it is *bounded*.. In other words, there exists  $x_0 \in P$  and  $M > 0$  such that

$$P \subset B_M(x_0) = \{x \mid \|x - x_0\| < M\}$$

Here  $B_M(x_0)$  denotes the open ball of radius  $M$ , as usual.



