



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.

