



**Definition**

Given a *nonzero*  $x \in \mathbf{R}^n$ , the *rays* (or *half-lines*) through  $x$  is the set

$$\{\lambda x \mid \lambda \geq 0\}$$

**Examples**

There are two rays in  $\mathbf{R}$ , corresponding to  $\{x \mid x \geq 0\}$  and  $\{x \mid x \leq 0\}$ .



