



Definition

Let (A, \leq) be a chain.

A *lower bound* for $B \subset A$ is an element $a \in A$ so that $a \leq b$ for all $b \in B$. A set is *bounded from below* if it has a least upper bound. A *greatest lower bound* for B is an element $c \in A$ so that c is a lower bound and $c < a$ for all other lower bounds a .

Proposition 1. *If there is a greatest lower bound it is unique.*¹

We call the unique greatest lower bound of a set (if it exists) the *infimum*.

Notation

We denote the infimum of a set $B \subset A$ by $\inf A$.

¹Proof in future editions.

