

an infinite set - The set of its upper bounds
This set ~~is~~ of upper bounds is bounded
below in as much as every member of
 S is a lower bound thereof.

Similarly,

A set S bounded below determines
an infinite set of its lower bounds, which
is bounded above by the members of
 S

* A member G of a set S is called the
greatest member of S if every member
of S is less than or equal to G .
i.e.,

(i) $G \in S$

(ii) $x \leq G, \forall x \in S$.

Similarly, a member g of the set is its
smallest (or the least) member if every
member of the set is greater than or
equal to g .

i.e., (i) $g \in S$, S is the set

(ii) $x \geq g, \forall x \in S$.

→ Clearly, a set may or may not have
the greatest or the least member but an
upper (or lower) bound of the set.

If it has a member of the set, is its
greatest (least) member.

→ A finite set always has the greatest
as well as the smallest member.

→ If the set of all upper bounds of a
set S has the smallest member say M ,
then M is called the least upper bound
(l.u.b) or the supremum of S .