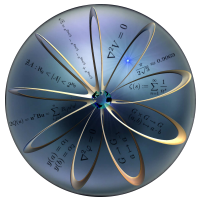

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## lowest upper bound

| | |
|---|---|
| Canonical name | LowestUpperBound |
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| Defines | least upper bound |
| Defines | greatest lower bound |
| Defines | supremum |
| Defines | infimum |

Let $S$ be a set with a partial ordering $\leq$, and let $T$ be a subset of $S$. A *lowest upper bound*, or *supremum*, of $T$ is an upper bound $x$ of $T$ with the property that $x \leq y$ for every upper bound $y$ of $T$. The lowest upper bound of $T$, when it exists, is denoted $\sup(T)$.

A lowest upper bound of $T$, when it exists, is unique.

Greatest lower bound is defined similarly: a *greatest lower bound*, or *infimum*, of $T$ is a lower bound $x$ of $T$ with the property that $x \geq y$ for every lower bound $y$ of $T$. The greatest lower bound of $T$, when it exists, is denoted $\inf(T)$.

If $A = \{a_1, a_2, \ldots, a_n\}$ is a finite set, then the supremum of $A$ is simply $\max(A)$, and the infimum of $A$ is equal to $\min(A)$.