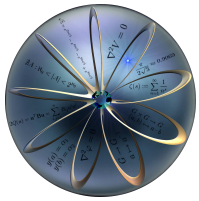

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infimum

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The *infimum* of a set S is the greatest lower bound of S and is denoted $\inf(S)$.

Let A be a set with a partial order $\leq$, and let $S \subseteq A$. For any $x \in A$, x is a lower bound of S if $x \leq y$ for any $y \in S$. The infimum of S, denoted $\inf(S)$, is the greatest such lower bound; that is, if b is a lower bound of S, then $b \leq \inf(S)$.

Note that it is not necessarily the case that $\inf(S) \in S$. Suppose $S = (0, 1)$; then $\inf(S) = 0$, but $0 \notin S$.

Also note that a set does not necessarily have an infimum. See the attachments to this entry for examples.