0.1 Infinitum and supremum

0.1.1 Infinitum

Consider a subset S of a partially ordered set T.

The infinitum of S is the greatest element in T that is less than or equal to all elements in S.

For example:

$\inf[0,1] = 0$

$\inf(0,1) = 0$

0.1.2 Supremum

The supremum is the opposite: the smallest element in T which is greater than or equal to all elements in S.

$\sup[0,1] = 1$

$\sup(0,1) = 1$

0.1.3 Max and min

If the infinitum of a set S is in S, then the infinimum is the minimum of set S. Otherwise, the minimum is not defined.

$\min[0,1] = 0$

$\min(0,1)$ isn't defined.

Similarly:

$\max[0,1] = 1$

$\max(0,1)$ isn't defined.