

Info

This note, that [was found here](#), as a part of [a collection](#) is written (completely with human hands) by [Rupadarshi Ray](#), was created on September 11, 2023 4:55:12 PM, was last modified on September 4, 2026 9:28:51 PM, and was exported on September 7, 2026 3:04:02 PM.

$[a,b]$

#wiki/Man/R/withbd
#wiki/Man/R/1

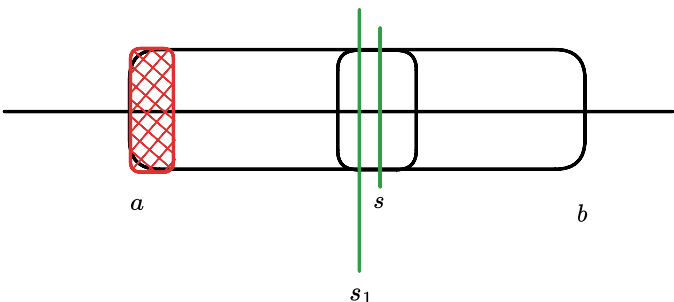
$[a,b]$ is compact

- Let $a,b\in\mathbb{R},a<b$ and take an open cover
$$[a,b]\subseteq\bigcup_{i\in I}U_i$$

- Consider

$$S:=\{s\in[a,b]:\text{finitely many }U_i\text{ cover }[a,s]\}$$

- $\exists i_a$ such that $a\in U_{i_a}$, so $a\in S$ (non-empty)
- Claim: $\sup S=b$
 - if not, $a<\sup S(=:s)<b$



-
- for an $s\in U_{i_s}$ take

Current note has 0 direct children and 0 total descendants.

- [stretchy](#)
 - $[a,b]$

And it has 62 siblings.

- [stretchy](#)
 - [Trefoil 3_1_knot](#)
 - [The only compact connected Lie group that can act faithfully on a torus is itself](#)
 - [Hecke algebras](#)
 - $\overline{B^n}$
 - $\mathrm{BS}(1,2)$
 - $(\mathbb{C},+,\times)$
 - $D^*:=D\setminus\{0\}$
 - [Cantor set](#)
 - [Configuration space of \$N\$ rigid points in \$\mathbb{R}^3\$](#)
 - [Free groups](#)
 - $GL(2)(\mathbb{Z})\curvearrowright T^2$
 - H^3_2
 - $[a,b]$
 - [Figure 8 knot](#)
 - [Lamplighter group on \$\mathbb{Z}_2\$](#)
 - $\beta\mathbb{N}$
 - $\#_2\mathbb{R}P^2$
 - $\prod_{i\in\mathbb{N}}\{1,\dots,n_i\}$
 - $\mathbb{R}P^n$
 - $(\mathbb{Q},+,\times,<)$
 - $\mathbb{Q}_{\hat{p}}$
 - $\overline{\mathbb{Q}}$
 - $\mathbb{Q}_{\mathrm{constr}}$
 - $\mathbb{Q}(\xi_n)$
 - $\mathcal{O}_{\overline{\mathbb{Q}}}$
 - $(\mathbb{R},+,\times,<,\sup)$
 - [Homeomorphism of \$\mathbb{R}^2\$ that sends \$\mathbb{N}\$ to a countable closed discrete subset](#)
 - $\mathbb{R}^2\times S^1$
 - $\mathbb{R}^n$
 - $\mathbb{R}\times S^1$
 - $\mathbb{R}\times S^2$
 - S^1
 - $S^1\wedge S^1$
 - $S^1\times S^n$
 - S^2 [and](#) $\mathbb{C}P^1$
 - [Mapping torus of the antipodal map of \$S^2\$](#)
 - S^3
 - S^n
 - [I-bundle](#)
 - [Symmetric group](#)
 - $\mathbb{I}$
 - T^2

- T_g^2
- $T_{0,0,3}^2$
- $\mathbb{R}^2 \setminus \{0\}$
- Three $T_{1,0,1}^2$ -glued at their boundaries
- $T_{1,1,0}^2$
- T_2^2
- $T_g^2 \times [0,1]$
- $\#_{\mathbb{N}} T^2$
- Thompson's group
- T^n
- 3-valent tree
- 4-valent tree
- $[0,1]^{\mathbb{N}}$ with product topology
- Whitehead manifolds
- $\mathbb{Z}$
- $\mathbb{Z}[\sqrt{m}]$
- $\mathbb{Z}[X]$
- $\mathbb{Z}^{\mathbb{N}}$
- $\mathbb{Z}[i]$
- $\mathbb{Z}[i\sqrt{5}]$