

This note, that [was found here](#), as a part of [a collection](#) is written (completely with human hands) by [Rupadarshi Ray](#), was created on June 9, 2023 12:58:35 PM, was last modified on September 7, 2026 2:34:29 PM, and was exported on September 7, 2026 3:24:50 PM.

Paths in a topological space

Definition. A **path** in a $X \in \mathbf{Top}$ is a continuous function

$$[0, 1] \rightarrow X$$

Definition. A **loop** in a $X \in \mathbf{Top}$ is a continuous function from [circle](#) to X

$$S^1 \rightarrow X$$

Current note has 3 direct children and 3 total descendants.

- structures based on sets
 - Topological spaces
 - Paths in a topological space
 - Concatenation of paths in a topological space
 - Fundamental group of a topological space
 - Path groupoid of a topological space

And it has 29 siblings.

- structures based on sets
 - Topological spaces
 - Group action on topological spaces
 - Discrete subgroup acting on coset space
 - Basis and subbasis for a topology
 - Principal G -bundles over topological spaces
$$G \curvearrowright P \rightarrow X$$
 - Vector bundles over topological spaces
 - Closure of a subset of topological space
 - Locally compact and 2-countable Hausdorff topological spaces are paracompact with countable refinement
 - Covering dimension of topological spaces
 - $\mathbf{EndTop}(X, Y)$
 - Eilenberg–Steenrod functors
$$(H_n : \mathbf{Top} \times \mathbf{Top} \rightarrow \mathbf{Ab}, \partial_n)$$
 - Local fields
 - Local fields of characteristic 0
 - Topological groups
 - Continuous group action on a topological space
 - Intersection of open, dense subsets of a topological space
 - Local topological spaces
 - Covering space of a topological space
 - Borel measures on a topological space
 - Convergence for nets in a topological space
 - Loops and a open cover of a topological space
 - Paths in a topological space
 - Product of topological spaces
 - Ringed topological spaces
 - Sheaf on open sets of a topological space
 - Closed subsets of a topological space
 - Discrete subsets of topological spaces
 - Types of topological spaces
 - Locally compact Hausdorff spaces
 - Topological vector spaces over $\mathbb{R}$ or $\mathbb{C}$