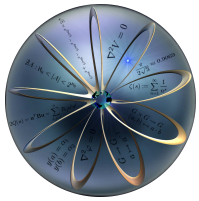

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first countable

Canonical name	FirstCountable
Date of creation	2013-03-22 12:23:33
Last modified on	2013-03-22 12:23:33
Owner	Evandar (27)
Last modified by	Evandar (27)
Numerical id	5
Author	Evandar (27)
Entry type	Definition
Classification	msc 54D99
Synonym	first axiom of countability
Related topic	SecondCountable
Related topic	TestingForContinuityViaNets

Let X be a topological space and let $x \in X$. X is said to be *at* x if there is a sequence $(B_n)_{n\in\mathbb{N}}$ of open sets such that whenever U is an open set containing x, there is $n \in \mathbb{N}$ such that $x \in B_n \subseteq U$.

The space X is said to be if for every $x \in X$, X is first countable at x.

Remark. Equivalently, one can take each B_n in the sequence to be open neighborhood of x.