



planetmath.org

Math for the people, by the people.

subbasis

Canonical name	Subbasis
Date of creation	2013-03-22 12:10:32
Last modified on	2013-03-22 12:10:32
Owner	evin290 (5830)
Last modified by	evin290 (5830)
Numerical id	10
Author	evin290 (5830)
Entry type	Definition
Classification	msc 54A99
Synonym	subbasic
Synonym	subbasic
Synonym	subbase
Related topic	Basis
Related topic	BasisTopologicalSpace

Let (X, \mathcal{T}) be a topological space. A subset $\mathcal{A} \subseteq \mathcal{T}$ is said to be a *subbasis* if the collection \mathcal{B} of intersections of finitely many elements of \mathcal{A} is a <http://planetmath.org/BasisTopologicalSpace> basis for \mathcal{T} .

Conversely, given an arbitrary collection \mathcal{A} of subsets of X , a topology can be formed by first taking the collection \mathcal{B} of finite intersections of members of \mathcal{A} and then taking the topology \mathcal{T} generated by \mathcal{B} as basis. \mathcal{T} will then be the smallest topology such that $\mathcal{A} \subseteq \mathcal{T}$.