Basis of a topology

Def: **Basis**, a basis for a topology on X is a collection $\mathcal{B}$ of subsets such that:

(1) for each $x \in X$, there is at least one basis element B s.t. $x \in B$.

(2) if $x \in B_1 \cap B_2$ then there exists a basis element B_3 s.t. $x \in B_3$ and $B_3 \subset B_1 \cap B_2$.

long story short: a basis is a collection of subsets of X which always contains every element of X.

and if any intersection of basis elements $B_i \cap B_j$ contains an element of x then there is a smaller B_k which contains this element.

How to generate a topology from a basis?

the topology $\mathcal{T}$ on X is formed as a collection of all unions of elements of the basis $\mathcal{B}$.

another look into the def. of a topo. basis

Given a topo space X,

we can have a collection of open sets G on X s.t. U openset in X there is an element $C \in G$ such that $x \in C \subset G$. then G is a basis for the topology of X.

in other words

a basis for a topology of X is a collection G of open sets of X such that at least one element of G contains any element of X.

How can we compare topologies based on their basis?