



Definition

Proposition 1. *Suppose \mathcal{T}_1 and \mathcal{T}_2 are two topologies on a set X . Then $\mathcal{T}_1 \cap \mathcal{T}_2$ is a topology on X .*

More generally, the intersection of a family of topologies is a topology.

Now suppose we are given some set of subsets \mathcal{B} of X . The intersection of the set of topologies on X which contain \mathcal{B} is a topology on X . We call this the *topology generated by \mathcal{B}* .

