

\* Defn: A topology on a set  $X$ , denoted  $\mathcal{T}$ ,

is a collection of subsets of  $X$ , satisfying:

1/ arbitrary union of elements of  $\mathcal{T}$  must also be an element of  $\mathcal{T}$ .

2/ finite intersection of elements of  $\mathcal{T}$  must also be an element of  $\mathcal{T}$

3/  $\emptyset$  empty set and  $X$ .