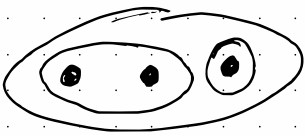
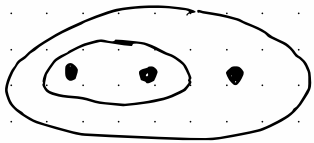
if τ and τ' are topologies on X and τ' is strictly finer than τ what can you say about the corresponding subspace topologies on a subset Y of X

if $U \in \tau_Y$ then $U = Y \cap E$, $E \in \tau$

but $E \in \tau'$ so $U \in \tau'_Y$

$\tau_Y \subseteq \tau'_Y$





we see that τ'_Y is not necesarily strictly finer