

Math 970 Homework # 6

Due: Oct. 16

27. Show that if $\mathcal{T} \subseteq \mathcal{T}'$ are topologies on X and (X, \mathcal{T}') is connected, then so is (X, \mathcal{T}) .
28. Find an example of a space X and subset $A \subseteq X$ where $\text{int}(A)$ and $\text{cl}(A)$ are both connected, but A is not.
29. Show by example that for $f : X \rightarrow Y$ continuous and $A \subseteq Y$, having one of $f^{-1}(A)$ and A be connected does not imply that the other is connected.