Extra Credit Assignment 8

Due Thursday, October 22, 11:59 PM

Suppose X is a topological space and $\sim$ is an equivalence relation on X. Prove that the quotient topology on $X/\sim$ is the *biggest* topology for which the quotient map $q : X \to X/\sim$ is continuous.

(In other words, let $\mathcal{T}$ be the quotient topology on $X/\sim$. If $\mathcal{T}'$ is any other topology on $X/\sim$ for which q is continuous, prove that $\mathcal{T}' \subset \mathcal{T}$.)