Homework Assignment 3

Assigned Thursday October 21; due Thursday November 4, 3PM, in class

Required reading. Read, reread and rereread your notes to this point, and make sure that you really, really really, really really really understand everything in them. Do the same every week! Also, read all of Munkres chapter 5.

Solve the following problems. In Munkres' book, pages 241–242: Problems 2, 4, 6, 7 (read about "totally disconnected" on page 152), 9 (for $X = \mathbb{N}$) and 10 (all are to be submitted).

Just for fun. Compact Hausdorff topologies are "stable under perturbation" (and hence natural). Indeed, show that $\mathcal{T}$ is a compact Hausdorff topology on a set X and $\mathcal{T}'$ is either bigger or smaller than $\mathcal{T}$, then $\mathcal{T}'$ is either not compact or not Hausdorff.