

Math 544
Fall 2018
Homework 4

Read Chapters 5 and 6 of your text and do problems 5-3 (assume part a), 5-7, and the following: Let X be the quotient space obtained from the disjoint union of a countable number of copies of the interval $[0, 1)$ with the origins all identified. In other words, $X = [0, 1) \times \mathbb{N} / \sim$, where $(0, m) \sim (0, n)$ for all $m, n \in \mathbb{N}$. Prove that X is neither first countable nor locally compact.

This assignment is due Monday, October 29.