MAT 530 Topology, Geometry I

Problem Set 7

due Friday, October 23

Munkres question 3 of §33 and 1,3,5,7 of §34.

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Quotient topology will be discussed in class on Monday. Please do question 4 of §22, as well as the following question:

Let X be a compact Hausdorff topological space, $A \subset X$. Prove that the quotient space X/A is Hausdorff if and only if A is closed.

(To form the quotient space, we consider the equivalence relation $\sim$ which glues together all points of A, i.e. $x \sim y$ if $x, y \in A$, and any point not in A is equivalent only to itself. We define $X/A = X/\sim$.)