

Math 3200: Intro to Topology – Homework 1
Due (at the start of class): Tuesday, January 19

This assignment has 3 parts for a total of 30 points.

1. Let S be a set, and let A , B , and D be subsets of S . (That is: Let $A \subset S$, $B \subset S$, and $D \subset S$.)
Prove the following:
 - (a) (10 points) $A \subset B$ if and only $A \cap B = A$.
 - (b) (10 points) $(S \setminus A) \subset B$ if and only if $A \cup B = S$.
 - (c) (10 points) $A \cup (B \cap D) = (A \cup B) \cap (A \cup D)$.