

Math 363

Assignment 1 Supplement

Due Friday, February 4, 2011.

Notation: Let $X = \{a, b, c, d, e, f\}$ with the topology

$$\mathcal{T} = \{\emptyset, X, \{a, b\}, \{c, d\}, \{e, f\}, \{a, b, c, d\}, \{a, b, e, f\}, \{c, d, e, f\}\}.$$

1. What are the closures, interiors, and boundaries (frontiers) of each of the following sets?
 - (a) $\{a, b\}$.
 - (b) $\{a\}$.
 - (c) $\{a, b, c\}$.
 - (d) $\{a, c, e\}$.
2. Which subsets of X are dense in X ? Why?
3. Let $Y = \{a, b, c\}$.
 - (a) What is the subspace topology on Y ?
 - (b) What are the closed sets in the subspace topology on Y ?
 - (c) Which subsets of Y are dense in the subspace topology on Y ?
4. Let $Y = \{a, c, e\}$.
 - (a) What is the subspace topology on Y ?
 - (b) What are the closed sets in the subspace topology on Y ?
 - (c) Which subsets of Y are dense in the subspace topology on Y ?