

Topology II, Newberger, Fall 2005

Reading Homework: Section 22. Due Thursday, September 1. Be prepared to be called on in class to answer these questions. Do not turn in your answers to these questions!

- (1) Read the definition of *saturated* on page 137. Explain what this definition means.
- (2) Give an example of topological spaces X and Y , a continuous, surjective $p : X \rightarrow Y$, an open set $C_1 \subset X$ that is saturated, and an open set $C_2 \subset X$ that is not saturated. Keep it as simple as you can. Use the functions given as examples in the book if you get stuck.
- (3) Explain the relationship between the words saturated and quotient map.
- (4) Prove that the definitions of quotient map given using the word saturated and as originally stated are equivalent.
- (5) Read Example 3 page 138. Find all saturated, open subsets of \mathbb{R} in this example.
- (6) Read Example 4 page 139. Give an example of an open set that is not saturated.