Math 441 **Topology** **Autumn 2002**

Assignment #8: Due 11/25/02

I. Reading:

- Read Patty, §2.6.
- Skim Patty, §3.1.

II. Practice problems:

1. Patty, Exercises 2.2 (pp. 71–72) #2, 3, 9, 12, 15.

III. Required problems:

1. Patty, Exercises 2.2 (pp. 71–72) #4.
2. Patty, Exercises 2.2 (pp. 71–72) #5.
3. Patty, Exercises 2.2 (pp. 71–72) #6.
4. Patty, Exercises 2.2 (pp. 71–72) #7.
5. Patty, Exercises 2.2 (pp. 71–72) #8.
6. Patty, Exercises 2.2 (pp. 71–72) #10.
7. Patty, Exercises 2.2 (pp. 71–72) #11.
8. Patty, Exercises 2.2 (pp. 71–72) #13.
9. Patty, Exercises 2.2 (pp. 71–72) #14.
10. (a) Let X_1, X_2, Y_1, Y_2 be topological spaces, and let $f_1 \colon X_1 \to Y_1$ and $f_2 \colon X_2 \to Y_2$ be any maps. Define a map $f_1 \times f_2 \colon X_1 \times X_2 \to Y_1 \times Y_2$ by

$$f_1 \times f_2(x_1, x_2) = (f_1(x_1), f_2(x_2)).$$

If f_1 and f_2 are continuous, prove that $f_1 \times f_2$ is continuous.

(b) Use (a) to give a simple proof of Theorem 2.27.