Math 215a Homework #1, Due Thursday 9/15 at 9:40 AM

1. Hatcher, §1.1, Exercise 3.
2. Hatcher, §1.1, Exercise 6.
3. Hatcher, §1.1, Exercise 16
4. Hatcher, §1.2, Exercise 10
5. Hatcher, §1.2, Exercise 17.
6. Let G be a topological group. Show that $\pi_1(G, 1)$ is abelian. (A *topological group* is a set G with both a topology and a group structure, such that the group operations are continuous. That is, the map $G \to G$ sending $x \mapsto x^{-1}$ and the map $G \times G \to G$ sending $(x, y) \mapsto xy$ are continuous.)
7. How difficult was this assignment? (1 = very easy, 5 = very hard)