

## Homework for 651

Problems due February 20, 2007

1. Problem 1, page 52 in Hatcher.
2. Problem 4, page 53 in Hatcher.
3. Let  $X \subset \mathbb{R}^3$  be the union of  $n$  disjoint straight lines. Compute  $\pi_1(\mathbb{R}^3 - X)$ .
4. Problem 14, page 54 in Hatcher.
5. Problem 21, page 55 in Hatcher.