

INTRO TO ALGEBRAIC TOPOLOGY
HOMEWORK 5 DUE MARCH 5

Turn in the following:

- (1) Hatcher Exercise 1.2.6 (p. 53)
- (2) (a) Compute $\pi_1(S^2)$ using the Seifert-van Kampen theorem, taking A_1 (respectively A_2) to be a neighborhood of the northern (respectively southern) hemisphere. Repeat for $\pi_1(S^n)$, $n \geq 3$.
(b) Compute $\pi_1(S^n)$, $n \geq 3$, using the usual cell decomposition for S^n and the result of Hatcher Exercise 1.2.6 (Problem 1 above).
- (3) Hatcher Exercise 1.3.2 (p. 79)
- (4) Hatcher Exercise 1.3.4 (p. 79)
- (5) Hatcher Exercise 1.3.9 (p. 79)