

Math 432/532 (Diff. Top.), Winter 2016
HW 6

Starred problems are for 532 students, and are extra credit for 432 students (not worth as much as a usual problem). 532 students must LaTeX their solutions.

1. G+P Chapter 1.6, exercise 8, 9*, 10.
2. G+P Chapter 1.7, exercise 2, 3.
3. (a) G+P Chapter 1.6, exercise 4.
(b) G+P Chapter 1.6, exercise 5.
(c) Show that any smooth map $f: X \rightarrow S^n$ whose image does not contain the north pole is homotopic to a constant map. (Hint: stereographic projection.)
(d) Show that any smooth map $f: X \rightarrow S^n$, where $\dim X < n$, is homotopic to a constant map. (Hint: use Sard's theorem.)
4. G+P Chapter 2.3, exercise 4, 5 (their hint for exercise 5 refers to the wrong exercise, it should refer to Chapter 1.6 exercise 10)
5. G+P Chapter 2.3 exercise 8*