

## MATH 550B, HOMEWORK 1

### HOMOTOPY

**Due at start of class, Thursday, 9/4**

Reading. Read §51 of Munkres.

Problems (to turn in).

- (1) Munkres §51 exercise 1.
- (2) Munkres §51 exercise 3 part a) and part b) only.
- (3) Let  $X$  be a topological space and let  $P$  be the set of all paths in  $X$ . Show that the relation given by “ $f \sim g$  if and only if  $f$  is path-homotopic to  $g$ ” is an equivalence relation on  $P$ .