

Topology II, Newberger, Fall 2005

Exam 2 Review

This exam covers Sections 53, 54, 55, 58, 59, 60.

- I. Know the following definitions and theorems:
 - a. homotopic, path homotopic, nullhomotopic
 - b. fundamental group
 - c. simply connected
 - d. homomorphism induced by h
 - e. evenly covered, covering map
 - f. lifting
 - g. lifting correspondence
 - h. retraction
 - i. deformation retract
 - j. homotopy equivalence
- II. You will be asked to prove at least one of the following theorems. Theorems 54.3, 58.3, 58.7, 60.1
- III. You will be asked to solve at least two problems involving the vocabulary and theorems in the sections listed above. In particular, you may be asked to do the following calculations.
 - (a) Determine the fundamental group of a given topological space. Know the fundamental groups of S^n , \mathbb{R}^n and P^n .
 - (b) Given a covering map and a path in the quotient space, determine a lift of the path to the covering space.