

MATH 429 – Fall 2005
Review sheet for the final exam

Concepts to be known

- Topological spaces
- The discrete topology, the indiscrete topology
- The standard topology and the lower limit topology on \mathbb{R} .
- The metric topology
- Topological bases
- The subspace topology
- The product topology, the box topology
- The order topology
- Limit points
- Closure and interior of a set
- Hausdorff spaces
- Continuity on topological spaces
- Topological embeddings
- Homeomorphisms
- Connected spaces
- Path-connected spaces
- Connected subspaces of the real line
- Compact spaces
- Homotopy of continuous maps
- Homotopy of paths
- Product of paths
- The fundamental group of a topological space
- Simply connected spaces
- Covering spaces
- Lifting of continuous maps.
- The fundamental group of S^n , $n = 1, 2, \dots$

Theorems to be known

All theorems from Chapter 2 and Chapter 3 (Sections 23-24, 26-27), and Chapter 9 (Section 51-54).

Note: You will be asked to state three definitions from Sections 12-13, 23, 26, 51-53.

Practice problems

- Page 101: # 13
- Page 152: # 2, 3
- Page 158: # 2, 8, 10
- Page 171: # 6 , 7, 8.
- Page 330: # 2, 3
- Page 334: # 1, 4
- Page 341: # 1, 2 , 5
- Page 347: # 1, 3
- Page 375: # 1