

Math 713 Quiz 1 Review Sheet Version A

The quiz will cover all of Chapter 1 and 2 except for Section 2.5. In addition you should know the definition of Lebesgue outer measure from Section 3.2 on page 106 and the material from the homework problems. The following outline should help focus your study.

- Definitions
 - Arbitrary union and intersection (page 9)
 - Image and inverse image of a function (page 15)
 - Arbitrary Cartesian product (page 18)
 - Countable and uncountable (page 21)
 - Algebra, σ -algebra and monotone class (pages 27–29)
 - Two definitions of open and closed (page 57, 61 and Proposition 2.14)
 - What it means for $G \subseteq D$ to be open relative to D .
 - Two definitions of cluster point (Definition 2.4 and Problem 2.33)
 - Two definitions of limit point (page 60)
 - Two definitions of accumulation point (problem 2.43)
 - Two definitions of limit, limsup and liminf (pages 44, 48)
 - Two definitions of continuity (page 65 and Theorem 2.5)
 - Uniform and pointwise convergence (page 68–69)
 - Characteristic function of a set (page 81)
 - Upper and lower Riemann integral (page 82)
 - Lebesgue outer measure (page 106)
- All homework problems
- Statements of Axioms and Theorems
 - De Morgan's Laws (page 5)
 - Proposition 1.10, 1.11 and 1.12 (page 24)
 - Completeness axiom (page 37)
 - Proposition 2.14 (page 61)
 - Theorem 2.7 (page 86)
- Proofs of Theorems
 - Proposition 1.7 (page 22)
 - Monotone Class Theorem (page 30)
 - Schroeder–Bernstein Theorem (lecture notes from August 30)
 - Density of rational and irrational numbers (page 39)
 - Structure theorem for \mathbf{R} (Proposition 2.13 page 59)
 - Lindelöf's Theorem (homework 2 problem 5 solution)
 - Theorem 2.5 (page 66)
 - Proposition 2.15 (page 70)