Real Analysis Exam Solutions

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Real Analysis Exam Solutions

Math 312, Intro. to Real Analysis: Final Exam: Solutions Stephen G. Simpson Friday, May 8, 2009 1. True or false (3 points each). (a) For all sequences of real numbers (sn) we have liminf sn ≤ limsupsn. True.

Math 312, Intro. to Real Analysis: Final Exam: Solutions

Solution: This is known as Bernoulli’s inequality. Let a2R with a> 1. We proceed by induction. For n= 0, (1 + a)0 = 1 = 1 + (0)awhich is trivially true. Assume that the inequality is true for some k 0. Then (1 + a)k 1 + ka. Consider the case of k+1. Since a> 1, then 1+a>0. By assumption, (1+a)k 1+ka. Hence, (1+a)k+1 = (1+a)(1+a)k (1+a)(1+ka).

Math 4317 : Real Analysis I Mid-Term Exam 1 25 September 2012

MATH 4310 Intro to Real Analysis Practice Final Exam Solutions 1. Find the limits of the following sequences. (a) s n = nx 1+n; x>0 Solution: s n!xsince jnx 1+n xj= 1 n+1 x!0. (b) s n = n(1 cos(x=n)); x>0 Solution: By Taylor remainder thm (Theorem 2.5.4), cos(x=n) = 1 2(x=n) =2+sin(c n)(x=n)3=6, for some c n 2(0;x=n). Thus, js nj= nj(x=n)2=2 sin(c

MATH 4310 Intro to Real Analysis

FINAL EXAMINATION SOLUTIONS, MAS311 REAL ANALYSIS I 3 (ii) Show that sn ≤ 2 for all n. (Hint: Use induction again.) (5 marks) Proof. Once again, the case for n = 1 is easily true as s1 = √ 2 ≤ 2. Assuming the contention hold for n = k −1, then sk = q 2+ √ sk−1 ≤ √ 2+2 = 2, where the inequality above follows from the induction hypothesis.

FINAL EXAMINATION SOLUTIONS, MAS311 REAL ANALYSIS I ...

Ph.D. QUALIFYING EXAM IN REAL ANALYSIS January 10, 2008 Three hours There are 11 questions. A passing paper consists of 6 questions done completely correctly, or 5 questions done correctly with substantial progress on 2 others. 1. Let {xn}∞ n=1 be a bounded sequence in R. Assume that every convergent subsequence converges to the same real number.

Ph.D. QUALIFYING EXAM IN REAL ANALYSIS

Solution. • (a) If x > 0, then |fn(x)| ≤ 1 1+nx → 0 as n → ∞ so fn(x) → 0. Also, fn(0) = 0 for every n, so fn(0) → 0. Thus, fn → 0 pointwise on [0,∞). • (b) We have |fn(x)| ≤ 1 1+na < 1 na for all a ≤ x < ∞, so given ǫ > 0 take N = 1/a and then |fn(x)| < ǫ for all n > N, meaning that fn → 0 uniformly on [a,∞).

RealAnalysis Math 125A, Fall 2012 Sample Final Questions

XExclude words from your search. Put - in front of a word you want to leave out. For example, jaguar speed -car. Search for an exact match. Put a word or phrase inside quotes. For example, "tallest building". Search for wildcards or unknown words. Put a * in your word or phrase where you want to leave a placeholder.

Exams | Real Analysis | Mathematics | MIT OpenCourseWare

There will be a final exam on Wedesday, June 13, 8 am-11 am, in MS 6627 (our usual classroom). The final exam will be cumulative and cover the material from the whole quarter. I will hold my usual office hours during finals week (M 2 pm-2:50 pm, T 1 pm-1:50 pm). No make up exams will be given under any circumstances.

Math 131A: Real Analysis

UCLA Analysis Qualifying Exam Solutions Last updated: July 27, 2020 List of people that have contributed solutions: Adam Lott William Swartworth Matthew Stone Ryan Wallace Bjoern Bringmann Aaron George James Leng Compiled and maintained by Adam Lott Contents 1 Spring 2009 3 2 Fall 2009 8 3 Spring 2010 13 4 Fall 2010 17 5 Spring 2011 23 6 Fall ...

UCLA Analysis Qualifying Exam Solutions

Math 405: Introduction to Real Analysis Course Description. This is an introduction to real analysis. Topics covered in the course will include, The Logic of Mathematical Proofs, Construction and Topology of the Real Line, Continuous Functions, Differential Calculus, Integral Calculus, Sequences and Series of Functions.

Math 405: Introduction to Real Analysis

Chapter 1 Spring 2011 1.1 Real Analysis A1. (a) ‘1(Z) is separable.A countable set whose nite linear combinations are dense is fe ng n2Z, where e nhas a 1 in the nth position and is 0 everywhere else. If x 2‘1(Z), then the sums P N k= N x ke k approximate x arbitrarily well in the norm as N!1since

Analysis Qualifying Exam Solutions - Home - Math

Math 312, Intro. to Real Analysis: Midterm Exam #1 Solutions Stephen G. Simpson Friday, February 13, 2009 1. True or False (3 points each) (a) Every ordered field has the Archimedean property.

Math 312, Intro. to Real Analysis: Midterm Exam #1 Solutions

Part A: real analysis (Lebesgue measure theory) Part B: complex analysis; Part C: applied analysis (functional analysis with applications to linear differential equations) Each part will contain four questions, and correct answers to two of these four will ensure a pass on that part. To pass the Analysis exam, you must either pass Part A and Part B, or Part A and Part C.

Old Qualifying Exams | Department of Mathematics
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[Actually, I've been wanting to do this for quite a while--at least for real analysis qualifying exam links.] Because this collection is likely to prove very useful to a lot of people--students preparing for these exams as well as faculty who have to make out future exams--I'm posting this in sci.math, sci.math.research, and alt.math.undergrad ...

Math qualifying exam websites
REAL ANALYSIS PH.D. QUALIFYING EXAM SOLUTION SET 1. µ 6= f g ‰ REAL ANALYSIS PH.D. QUALIFYING EXAM SOLUTION SET January 31, 2009 A passing paper consists of 7 problems solved completely, or 6 solved completely with substantial progress on 2 others. 1.

REAL ANALYSIS PH.D. QUALIFYING EXAM SOLUTION SET 1. µ 6= f g
Real analysis is an important area of mathematics that deals with sets and sequences of real numbers, as well as the functions of one or more real variables.It is one of the main branches of mathematical analysis.Real analysis can be treated as a subset of complex analysis, since many results of the former are special cases of results in the latter.

Real Analysis Online Help and Tutor | 24HourAnswers
Math 4317 : Real Analysis I Mid-Term Exam 2 1 November 2012 Name: Instructions: Answer all of the problems. De nitions (1 point each) 1.For a sequence of real numbers fs ng, state the de nition of limsups n and liminf s n. Solution: Let u N = supfs n: n>Ngand l N = inffs n: n>Ng. Then limsup n!1 s n= lim N!1 u N and liminf n!1 s n= lim N!1 l N:

Math 4317 : Real Analysis I Mid-Term Exam 2 1 November 2012
Principles of Mathematical Analysis (International Series in Pure and Applied Mathematics). 3rd ed. McGraw-Hill, 1976. ISBN: 9780070542358. ISBN: 9780070542358. Assignment files.