Real Analysis

Math 310 MWF 10:30-11:25am
Fall 1996 127 Fowler

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#31 Friday (12/06/96)

SUMMARY Final Exam Review Session Part 2

READING §14-19, §23

Topics

1. §14 Series Notation, partial sums
2. definition of convergence/divergence, absolute convergence
3. Geometric series, p-th test, Cauchy criterion
4. Convergence Tests: Comparison, Ratio, Root, Alternating Series, Integral
5. §17 both definitions of continuity ($\epsilon - \delta$) and limit definiti $\lim x_n = x_0 \Rightarrow \lim f(x_n) = f(x_0)$ for all sequences (x_n) on
6. Ability to prove continuity/discontinuity at a point
7. Definition of Uniform Continuity, proof of uniform continuity on a set
8. **19.2** continuity on a closed interval $[a, b] \Rightarrow$ uniform continuity on $[a, b]$
9. **19.4** uniform continuity and Cauchy sequence $\Rightarrow (f(s_n))$ is Cauchy
10. **19.5** continuous extension $\tilde{f}$ on $[a, b]$ exists $\Leftrightarrow f$ is uniformly continuous on (a, b)
11. **19.6** If f is differentiable and f' is bounded on an interval $\Rightarrow f$ is uniformly continuous on the interval
12. Power Series (definition, converging possibilities)
13. Interval of Convergence and Radius of Convergence $\beta = \limsup |a_n|^{1/n}$ and $R = 1/\beta$

Study Guide You should use this topic list as a study guide. Try and think of a typical problem that would test each of these ideas.
We can think of these topics and group them into six different areas.
I think you can use these groupings to work in small groups to come up with pr oblems that cover the topics in the groupings. Then you can exchange YOUR problem with someone elses and try and solve each other's problems.

SUGGESTED GROUPINGS

1-2 series convergence definition

3-4 convergence tests

5-6 continuity and discomtinuity

7 uniform continuity

8-11 uniform continuity theorems

12-13 power series

TEXT OF PROBLEM

TEXT OF SOLUTION