Math s21 - Day Seventeen (Tuesday, May 22, 2007)

This week we will talk about convergence of sequences (today) and algebraic structures (tomorrow). These topics hint at some of the mathematics discussed in Real Analysis (Math 301) and Abstract Algebra (Math 309).

9:00-10:20

A. Discuss Exam 4.

B. In groups of three, begin reading Section 8.5.

   1. Look carefully at Theorem 8.5.2: what does the **triangle inequality** really mean? Demonstrate it with a picture (3 points and the distances between them, or perhaps cities on a map).
   2. Do exercises 8.5.4 and 8.5.5. In 8.5.5, first draw graphs of the sequences, similar to the graph shown on page 122. What does it mean *graphically* for sequences to converge? Once your group can explain this, then prove convergence of each sequence, using Definition 8.5.3.

10:20-10:35 Break

10:35-11:30

C. Groups present solutions to exercises at the board.

D. Groups continue reading Section 8.5. **STOP after Corollary 8.5.10.** Along the way: prove Theorems 8.5.6 and 8.5.8. If you finish early, begin proving the five parts of Theorem 8.5.7.

11:30-11:55 Maple and LaTeX

11:55-1:00 Lunch

1:00-3:00

E. Maple assignment is due at 1:00p.m.

F. Groups present proofs at the board.

G. New groups begin the worksheet.

H. Groups present selected results at the board.

New Key Ideas Today

sequence convergence
triangle inequality iterated map
distance
ε and N

Topic to Discuss Wednesday

Groups and Algebraic Structures (not all from our textbook)

Homework

Complete the worksheet.