**Math 310 B & C  Introduction to Mathematical Reasoning  Autumn 2005**

ASSIGNMENT #9

DUE 11/30/05

## Reading

- Chapters 20, 21.

## Short Answers

*None this week.*

## Long Answers

*For each of the following problems, give a careful proof of every assertion you make.*

- Pages 201–205, Problems 16.9, 16.14.
- Pages 215–221, Problems 17.4, 17.5, 17.9.

  *Note for Problem 17.5: You are probably familiar with the factorial function,* $n! = 1 \cdot 2 \cdot \ldots \cdot n$. *Formally,* $n!$ *is defined inductively by*

$$1! = 1,$$
$$(n+1)! = (n+1) \cdot n! \quad \text{for } n \geq 1.$$

## For Fun and Practice

*These need not be handed in; but if you want to hand them in with your Long Answers, I'll look at them.*

- Pages 215–221, Problem 17.11.