

Math 108, problem set 11  
REVISED WED APR 30  
Outline due: Wed May 07  
Completed version due: Mon May 12  
Last revision due: TBA

**Definitional note.** Note that the formal (inductive) definition of  $\bigcup_{i=1}^n A_i$  is:

$$\bigcup_{i=1}^1 A_i = A_1,$$
$$\bigcup_{i=1}^{n+1} A_i = \left( \bigcup_{i=1}^n A_i \right) \cup A_{n+1} \quad \text{for } n \in \mathbf{Z}^+.$$

**Exercises (to be done but not turned in):** 22.1, 22.5, 22.9.

**Problems to be turned in:** All numbers refer to problems in the Yellow Book.

1. 22.2(b), (d), and (e). Prove each assertion you make, using the definitions and theorems from Chapter 20–22.
2. 22.5(b,c).
3. 22.7.
4. 22.8.