18.014 UNIT I: REAL NUMBERS

Thurs. Sept. 7.

Lecture: Axioms for the real numbers.

Read: Apostol I 3.1 – I 3.7.

Do: p. 19: 1 (the ones not done in lecture), 2, 3, 4, 8; p. 21: 1, 2, 3, 9.

Fri. Sept. 8.

Lecture: Integers, exponents, summations.

Read: Notes A; Apostol I 4.1 – I 4.6.

Do: p. 35: 1acd, 3, 6 (10, 12 optional); p. 39: 1ab, 9, 11; p. A.9: 1, 5abc.

Recitation: Discussion of exercises. Each day, come to recitation prepared to put the assigned exercises on the board, and to ask questions about the ones that gave you difficulty.

Tues. Sept. 12.

Lecture: Least upper bounds; well-ordering principle.

Read: I 3.8–3.10; Notes B.

Do: p. A.9: 3, 4; p. 28: 1, 2, 3, 4, 5, 6, 7, 8. (Hint: In 4 and 5, first take the case where $x > 0$ and x is not an integer, and use the well-ordering principle to find n. In 6, first choose n so $1/n < y - x$.)

Thurs. Sept. 14.

Lecture: Triangle inequality; functions.

Read: I 4.8 (Skip Theroem I.41), 1.2, 1.4, 1.8–1.10.

Do: p. 43: 1abchij; p. 56: 6; p. 63: 2bdef, 4ab.

Hand in Fri. Sept. 15 in lecture. (7 points per problem)

1. p. 21: 7 and 10.
2. p. A.9: 2.
3. p. A.10: 6.

Date: Fall 2000.