# MAT 319, SPRING 03

## FOUNDATIONS OF ANALYSIS
Homework set # 1
*Due Wednesday, February 5, 2003*

1. From section 1.1 of textbook do problems 1, 4, 5 and 23.

2. From section 1.2 do problems 1, 2, 4 and 6.

3. There exists a unique positive real number $x$ that satisfies the algebraic equation
$$x^3 + x^2 - 5x - 5 = 0.$$

   Later, we will be able to prove this assertion. At this time, express $x$ as a Dedekind cut $\alpha$. Show that $\alpha$ contains rationals $> 2.236$ and list an increasing sequence of 20 such rationals. (Use of a calculator or MAPLE should simplify your calculations.)

4. From section 1.3 do problems 8, 10 and 17.

5. From section 1.4 do problems 1, 2, 5 and 15 .