Assignment 1. (1/14, due 1/16)

Read section 1.1 of Sundstrom. (Note: The answers to "progress checks" are given on page 26, at the end of the chapter. You can use these as study tools while reading or later on.)

To hand in: Do number 7 and 8 in the exercises for section 1.1 (pages 11-13). Also write a paragraph on the subject: What would you say to a high school algebra student who asked, "Why is it impossible to divide by zero?"

Notice that problem 9 on page 13 has a star. This means that there are either answers, partial answers, or hints at the back of the book, in this case on page 480. Make sure that you understand the answers to problem 9. When the answer is "no," write down a counterexample (an example showing that the closure statement is not true).

Notice the wording of the statements in problem 9. Learn to write closure statements properly. For instance, it makes sense to say "the set of integers is closed under addition," but it does not make any sense to say "2 and 3 are closed under addition." You might think that saying "2 and 3 are closed under addition" means that 2 and 3 can be added. But closure is not that simple. For instance, can 2 be divided by 3? The answer is "no" in the set of integers, and "yes" in the set of rational numbers. So a closure question does not make sense unless a specific {\it set} of numbers is specified. The correct form of a closure statement is

The set of . . . is closed under . . . .

It is acceptable to abbreviate "the set of integers" to "the integers," "the set of real numbers" to "the real numbers," and so forth. In this case "is" is changed to "are:"

The integers are closed under addition.