

**Northwestern University**  
Department of Electrical and Computer Engineering

ECE 222

Fall 2004

**Problem set 1:**

**Date Issued: Sept. 22**

**Date Due: Sept. 29**

Read Chapter 1 in Oppenheim and Willsky.

Do the following problems in Oppenheim and Willsky. Be sure to clearly explain your work and state any assumptions that you make.

Problems:

As discussed in lecture, we represent signals mathematically as functions of a single independent variable (referred to as time). It will be important to be able to sketch such functions when they are given in terms of other functions (for example by shifting or scaling). The first two problems give you practice with this.

- 1.21
- 1.22

The next three problems explore different properties of signals, including if they are even or odd and whether they are periodic.

- 1.24
- 1.25
- 1.32

Complex signals will be used extensively in this course. The last problem gives you some practice with manipulating complex numbers.

- 1.49 (a),(e),(h),(j)