CSE 322 Winter 2004
Assignment #3

Due: Friday, January 30, 2004

Reading assignment: Finish reading Chapter 1, sections 1.3-1.4.

Problems:

1. Design a NFA that does pattern matching for the string $x = ababaababab$ over the alphabet $\{a, b\}$, i.e. that accepts the language of all strings w over $\{a, b\}$ that contain x as a substring. Then use the 'on-the-fly' subset construction to convert this NFA to a pattern matching DFA for the string x.

2. Sipser's book page 86, Exercise 1.14.

3. Sipser's book page 86, Exercise 1.13 parts (a), (b), (c), (d), (e), (i), (l), Bonus: (f).

4. Sipser's book page 86, Exercise 1.16 (b). (Use the method from the handout.)

5. Show that if there is an NFA recognizing A then there are NFA's recognizing

   (a) $PREF(A) = \{x|$ there is some $y \in \Sigma^*$ with $xy \in A\}$

   (b) $SUFF(A) = \{y|$ there is some $x \in \Sigma^*$ with $xy \in A\}$

6. (Advance Notice Bonus not due until Feb 6) Sipser's book page 90, Problem 1.42