CSE 431 Spring 2012
Assignment #8

Due: Friday, June 1, 2012

Your final grade will be based on your best 7 out of 8 homeworks.

Reading assignment: Finish reading chapter 8 of the text.

Problems:

1. Sipser's text: Problem 8.11 in the 2nd edition (Problem 8.9 in the 1st edition).

2. Let $EQ_{REX} = \{\langle R, S \rangle \mid R$ and S are equivalent regular expressions$\}$. Show that $EQ_{REX} \in PSPACE$.

3. Let $A_{LBA} = \{\langle M, w \rangle \mid M$ is an LBA that accepts input $w\}$. Show that A_{LBA} is PSPACE-complete.

4. Show that $TQBF$ restricted to formulas where the part following the quantifiers is in conjunctive normal form is still PSPACE-complete.

5. Show that the language A of properly nested parentheses is in L. (For definiteness recall that A is the language generated by the grammar $S \rightarrow (S) \mid SS \mid \varepsilon$ though this grammar is not necessarily useful.)

6. (Bonus) Sipser's text: Problem 8.15 (both editions).