CSE 322 **Fall 1999**

Homework 3

Due Monday, Oct. 25, 1999

To justify your answer as to whether or not a language is regular, provide a DFA/NFA or a regular expression if you claim it is regular; a proof of non-regularity if you claim it is not.

1. [5 $\times$ 3 points] Give regular expressions expressing the languages of exercise 1.4 from text. Do all of them, turn in (a) - (e).
2. [5 $\times$ 2 points] Exercise 1.15 from text. Do all of them, turn in (a) - (e).
3. [30 points] Are the following languages regular? Justify your answer in each case.
   - [5 points] $\{0^{2n} \mid n \geq 1\}$
   - [5 points] $\{0^{2^n} \mid n \geq 1\}$
   - [10 points] $\{xx^R \mid x \in \{0,1\}^+\}$
   - [10 points] $\{xwx^R \mid x, w \in \{0,1\}^+\}$
4. [10 points] Is the set of regular languages closed under infinite union?
5. [10 points] Exercise 1.18 from text.