

CS 3800, Spring 2010

Homework 2

Assigned: Friday, 28 January 2010

Due: Friday, 5 February 2010

Good students should get at least 50 of the 90 possible points.

1. [10 pts] Do problem 1.49 (both parts) in the textbook.
2. [10 pts] Do problem 1.53 in the textbook.
3. [10 pts] Let $L = \{w \mid w \text{ is a binary numeral denoting a power of } 2\}$. Is L a regular language? If L is regular, prove it is regular. If L is not regular, prove it is not regular.
4. [10 pts] Let $L = \{w \mid w \text{ is a binary numeral denoting a power of } 8\}$. Is L a regular language? If L is regular, prove it is regular. If L is not regular, prove it is not regular.
5. [10 pts] Let $L = \{w \mid w \text{ is a binary numeral denoting a power of } 3\}$. Is L a regular language? If L is regular, prove it is regular. If L is not regular, prove it is not regular.
6. [8 pts] Do exercise 2.1 (all eight parts) in the textbook.
7. [12 pts] Do exercise 2.4 in the textbook.
8. [8 pts] Do exercise 2.6 in the textbook.
9. [4 pts] Do exercise 2.7 in the textbook.
10. [4 pts] Do exercise 2.9 in the textbook.
11. [4 pts] Do exercise 2.10 in the textbook.