CMSC330 Summer 2010—Quiz #1
June 16, 2010

Name __________________________________________

Do not start this quiz until you are told to do so!

Instructions

• You have 20 minutes for this quiz.

• This is a closed book exam. No notes or other aids are allowed.

• Answer essay questions concisely in 2-3 sentences. Longer answers are not needed.

• For partial credit, show all of your work and clearly indicate your answers.

• Write neatly. Credit cannot be given for illegible answers

1. (6 pts) What is the difference between structural and physical equality? Write a Ruby example of each type of comparison.

2. (8 pts) Write a regular expression that accepts the language “all binary strings ending in 0.” Using the algorithm described in class, reduce this RE to an NFA.
3. (6 pts) Use the subset algorithm discussed in class to reduce the following NFA to a DFA. \( \Sigma = \{a, b\} \). 

![Diagram of NFA with states S1, S2, S3 and transitions a, b, \( \varepsilon \).]