CS46 review for midterm exam 1

Midterm exam 1 covers all material through chapters 1 and 2 of the textbook. You should be able to define and explain the following terms. For automata, you should be able to work with the formal definitions and the drawings of finite state machines.

- proof techniques
  - direct proof
  - induction
  - proof by contradiction
- basic math & set theory terminology
  - countable, countably infinite, uncountably infinite
  - reflexive, symmetric, transitive
  - union
  - intersection
  - concatenation
  - Kleene star
- regular language
- deterministic finite automaton
- nondeterministic finite automaton
- regular expression
- Pumping Lemma for regular languages
- the Myhill-Nerode Theorem
- context-free grammar
- parse tree
- ambiguous
- Chomsky normal form[1]
- context-free language
- pushdown automaton
- Pumping Lemma for context-free languages

[1] We'll be working with this more on the next lab, so don't panic.

Make sure you understand how your knowledge in this course fits together. This table (from lab) might help. (You might consider revisiting the homeworks and practice problems to help fill in the "examples" rows.)

	regular languages	context-free languages
definition:		
techniques to prove a language *IS* in this class:		
techniques to prove a language *IS NOT* in this class:		
example language(s) in this class:		
example language(s) not in this class:		
this class is closed under operations:		