

**Your score on this exam is based on your best 7 of these 8 problems.**

1. Write a regular expression that generates a given language.
2. Determine whether each identity is true or false, and write a convincing justification.
3. Write a regular expression that generates a given language.
4. Write a regular expression that generates a given language.
5. Prove that a given language is not a regular language.
6. Given a deterministic finite-state machine, complete the table of distinguishabilities, and determine which states are equivalent.
7. Given a regular expression, draw an equivalent non-deterministic finite-state machine.
8. Given a deterministic finite-state machine, write an equivalent regular expression.