Homework 7

You are strongly encouraged to do all of the problems. However, only the ones marked with (*) will be graded.

(*) Question 1: Construct an NFA (non-deterministic finite automata) for the following language.

\[ L = \{ x \in \{a, b\}^* \mid \exists y, z \text{ such that } x = yz, \ y \text{ has an odd number of } 'b' \text{ symbols,} \]
\[ \text{and } z \text{ begins with the string } 'aa' \} \]

(Examples of strings in the language: \( x = babaa \), and \( x = abaabaa \). However, \( x = bbaababaa \) is not in the language.)

(*) Question 2: Convert the NFA from the previous problem into a DFA, as we did in class.

Question 3: 9.6 in the book.

Question 4: 9.18 in the book.