1. Give regular expressions for the following languages over $\Sigma = \{a, b\}$:
   (a) All words that have $ab$ as the first two and $ba$ as the last two letters.
   (b) All words that do not have $ab$ as the first two letters.

2. What is the shortest length string $w$ over $\{a, b\}$ which is not in the language denoted by the regular expression $b^*(abb)^*a^*$?

3. Do Problem 8 from Section 3.1 of the text.

4. Do Problem 21 from Section 3.1 of the text.

5. Do Problem 22 from Section 3.1 of the text.

6. Consider the grammar $G = (\{S, A\}, \{a, b\}, S, P)$ where $P$ is the set of productions
   
   \[
   \begin{align*}
   S & \to aA \\
   A & \to abS \mid b
   \end{align*}
   \]
   (a) Construct a DFA that accepts $L = L(G)$.
   (b) Construct a regular expression denoting $L$.
   (c) Construct a left-linear grammar for $L$.

7. Do Problem 23 from Section 4.1 of the text.

8. Do Problem 9 from Section 4.2 of the text.