1. Here is an $\varepsilon$-NFA. Convert it to a DFA and find all of the strings of length 2 accepted by it.

2. Design an $\varepsilon$-NFA for the set of strings consisting of either 01 repeated 1 or more times or 010 repeated 1 or more times.

3. Give a regular expression for the set of strings over the alphabet \{a, b, c\} containing at least one a and at least one b.

4. Give a DFA for the set of strings with an even number of zeros.

5. Give a regular expression for the set of strings with an even number of zeros.

6. Suppose we have a finite automaton with no transitions into the start state and none out of the final state. This automaton accepts language $L$. If we modify the automaton by adding an $\varepsilon$-transition from the final state to the start state, what language will it accept?

7. Convert the regular expression $(0+1)(01)^*$ into an $\varepsilon$-NFA.

8. Convert $(1+\varepsilon)(00^*1)'0^*$ into an $\varepsilon$-NFA

9. Convert the following DFA into a regular expression.