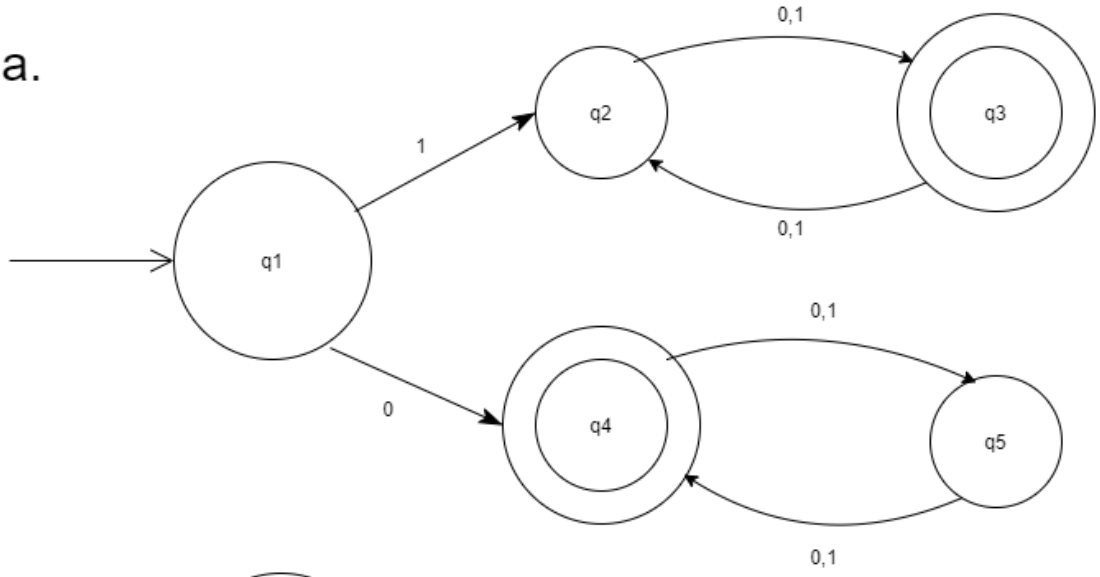
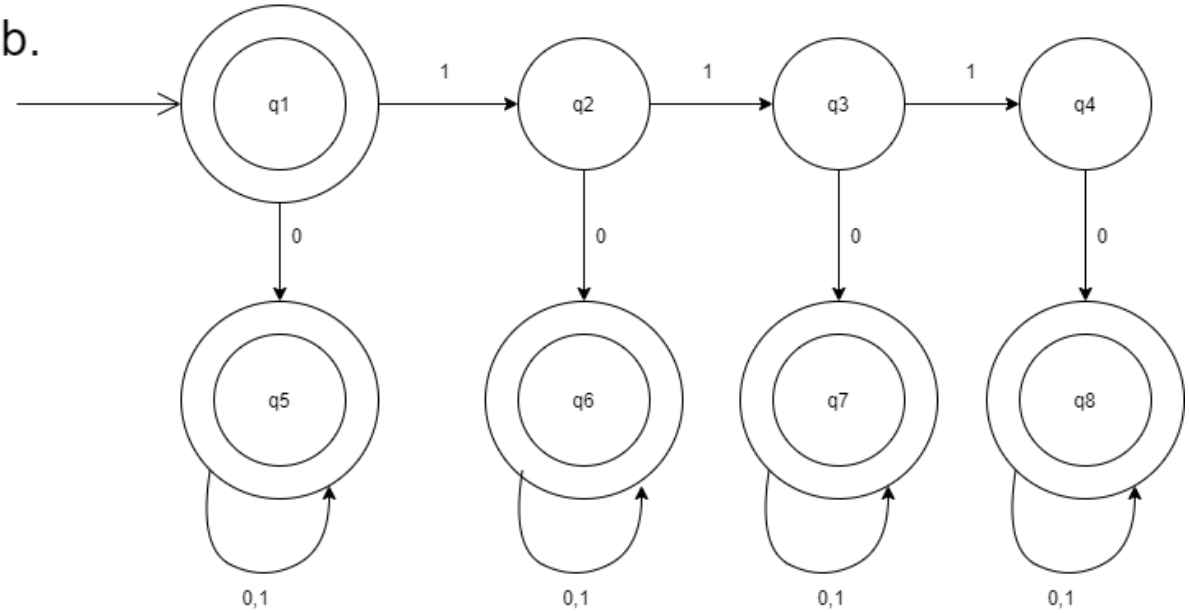
Homework 2

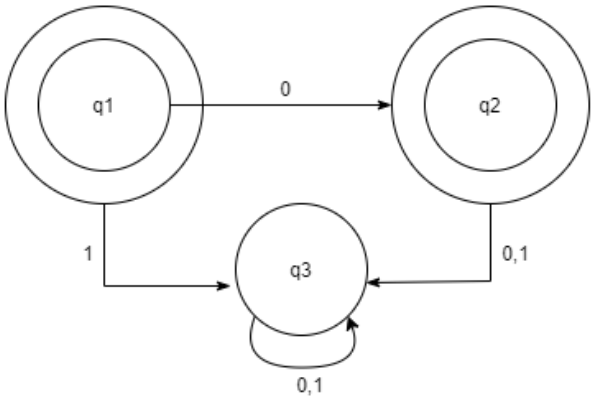
1.a.



1.b.



1.c.



2.

- A & B are both regular languages, so according to the theorem that regular languages are closed under complement proves that $\bar{A}$ & $\bar{B}$ are also regular languages.
- Under the theorem that regular languages are closed under intersection and union, we know that equations like $A \cap B = \overline{\bar{A} \cup \bar{B}}$ are regular.
- $A - B$ can be written as $A \cap \bar{B}$
- As said earlier, under the theorem that regular languages are closed under complement A & $\bar{B}$ are regular.
- This results in $A \cap \bar{B}$ being regular due to the theorem that regular languages are closed under intersection.
- Finally since $A \cap \bar{B}$ is a regular language, $A - B$ is also a regular language.