

TOC-Quiz # 1 (Topics: Preliminaries, Regex, FA)

1. Prove or disprove that rational numbers are rational.
2. For $\Sigma = \{a, b\}$, write the regular expressions for the following sets:
All strings in Σ^* which begin or end with exactly two b 's or exactly two a 's.
3. Describe the language accepted by the automaton corresponding to the transition diagram given in figure 1. Also, give its regular expression. (Note: assume that q_2 is not final state.)

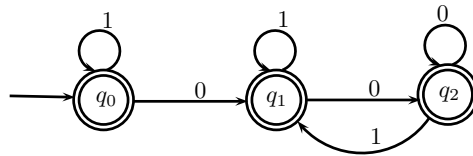


Figure 1: DFA.

4. If 0^* is regular, then show that language L , which is based on subset of O^* is also regular.