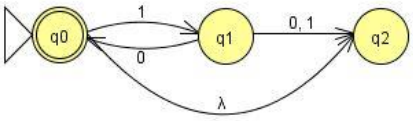
Homework 3 Total points: 10pts
Section 2.2 On page 57, #7, #8, #12

#7) (2 pts) In figure 2.9, find $\delta^*(q_0, 1010)$ and $\delta^*(q_1, 00)$.

Fig 2.9

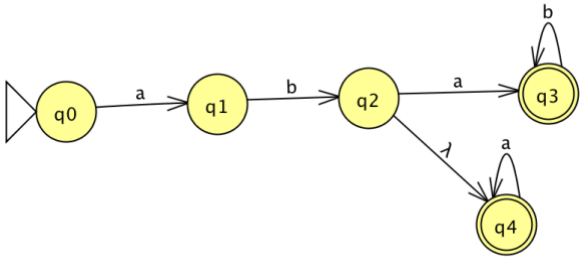


Answer:

$\delta^*(q_0, 1010) = \{q_0, q_2\}$
$\delta^*(q_1, 00) = \{\ \}$

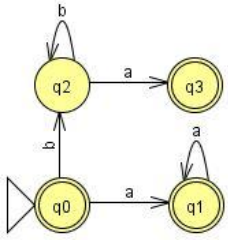
#8) (4 pts) Design an NFA with no more than five states for the set $\{abab^n: n>=0\} \cup \{aba^n: n>=0\}$.

Answer:



#12) (4 pts) Find an nfa with four states for $L = \{a^n : n \geq 0\} \cup \{b^n a : n \geq 1\}$.

Answer:



Other NFA graphs are possible, especially with \lamda transitions. As long as it accepts exactly the same language (not more or less strings), it is fine.