1. For each of the following Transition Graphs below, convert them to Regular Expressions using the Bypass Algorithm

   (a)
   \[ q_0 \xrightarrow{a,b} q_1 \xrightarrow{bba} q_0 \xrightarrow{abb} q_1 \xrightarrow{a,b} q_0 \]

   (b)
   \[ q_0 \xrightarrow{a} q_1 \xrightarrow{ab} q_2 \xrightarrow{bb} q_2 \xrightarrow{abb} q_1 \xrightarrow{ba} q_3 \xrightarrow{\lambda} q_4 \xrightarrow{a,b} q_4 \]

2. Given $FA_1$ and $FA_2$ below, construct Finite Automaton for:
   (a) $FA_1 + FA_2$  
   (b) $FA_1 FA_2$  
   (c) $FA_2^*$
3. For each of the following NFAs below, convert them to Finite Automaton

(a)

(b)

4. For the language accepted by the following machine, find a different FA with four states. Find an NFA that accepts the same language and has only seven edges (where edges with two labels are counted twice).