5. For each of the following statements answer whether or not it is true: [15 Points]

(a) $(L^*)^* = L^*$ True

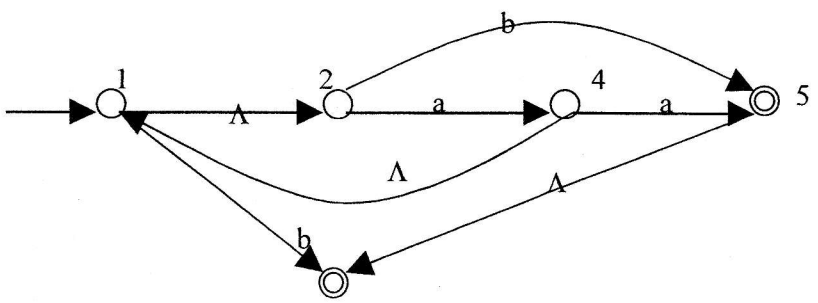
(b) The language L represented by the regular expression (ab)*a(ba)* can be defined recursively as a $\in$L; for every x $\in$ L, abx $\in$ L, xba $\in$ L, xaa $\in$ L; usual extremal clause. False

(c) b*aab* represents the language of all strings over {a,b} containing exactly two a's. False

(d) For an NFA-Λ, $\delta^*(q, xa) = \delta (\delta^*(q,x), a)$ False

(e) For sets of states S and T of an NFA-Λ, $\Lambda(\Lambda(S \cap T)) \subseteq \Lambda(S) \cap \Lambda(T)$. True

6. For the following NFA-Λ, answer the questions below:



The arrow between 1 and 3 goes only from 1 to 3