

TUTORIAL NUMBER 2

Q1. Let L be a language. It is clear from its definition that $L^+ \subseteq L^*$. Under what circumstances are they equal?

Q2. Prove that for any two regular expressions r and s over Σ , $(r^* s^*)^* = (r + s)^*$.

Q3. Define the following and give suitable examples –

- Union of RL
- Intersection of RL
- Complement of RL

Q4. Design an FA that reads strings made up of the letters in the word ‘CHARIOT’ and recognizes those strings that contain the word ‘CAT’ as a substring.

Q5. Design an FA that reads strings made up of $\{0, 1\}$ and accepts only those strings which end in either ‘00’ or ‘11’.