

(1) List, in lexicographic order,¹ the first five strings of $\{a, bb\}^*$.

ϵ, a, aa, bb, aaa

(2) How many strings of length 5 are there in $\{0, 1, 101\}^*$?

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(3) Darken the correct answer.

True False There is an infinite language with an infinite complement.

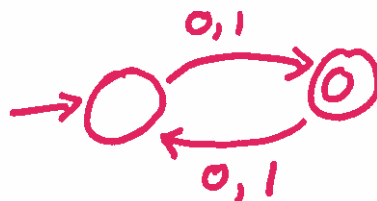
True False If language A is finite and language B is infinite then $A \circ B$ is infinite.

True False $L^+ \subseteq L^*$ for any language L .

(4) Give a regular expression the language of which is all binary strings that start with "01" and end with "10". Make it as short as you can.

$01(0 \cup 1)^*10 \cup 010$

(5) Draw a DFA for the language L of odd-length binary strings. You will need 2 states; don't use more. Remember to mark in the customary way the start state, the final state(s), and all transitions.



¹Lexicographic order of L : list all strings in L of length 0; then all strings in L of length 1; then all strings in L of length 2; and so on. Within a given length: use alphabetical order, for some understood ordering of characters. In this example, $a < b$.