Regular Expressions

Practice problems of Regular Expressions I

1. Set of all strings $\Sigma = \{a, b\}$ with exactly one a
2. Set of all strings $\Sigma = \{a, b\}$ with prefix ab
3. The language of all strings over $\Sigma = \{a, b\}$ that begin with "aba" and end with "bb"

   Here L includes $\{ababb, ababb, ababbb, ababbababb.....\}$
   Examples of strings not in the language: ϵ, aba, $abab$, abb
4. Write the regular expression for the language accepting all the string which are starting with 1 and ending with 0, over $\Sigma = \{0, 1\}$
5. The language starting and ending with a and having any combination of b's in between

Practice problems of Regular Expressions II

6. Write the regular expression for the language starting with a but not having consecutive b's

$$L = \{a, aba, aab, aba, aaa, abab, ...\}$$

7. Describe the language denoted by the regular expression $(b^*(aaa)^*b^*)^*$

   RE = (any combination of b's) $(aaa)^*$ (any combination of b's)

8. $\Sigma = \{0, 1\}$, all the strings do not contain the substring 01

   $L = \{\epsilon, 0, 1, 00, 11, 10, 100, ...\}$

9. Write the regular expression for the language containing the string in which every 0 is immediately followed by

10. Strings consisting of even number of a's followed by odd number of b's

11. Language with string 1 or 0 followed by any number of 1's

Practice problems of Regular Expressions III

12. Strings of 0's and 1's without any consecutive 1's
13. All strings with number of 0's even for $\Sigma = \{0, 1\}$
14. Strings of a's and b's ending with either a or bb
15. Strings of a's and b's having substring aa