TA: Jade Cheng
ICS 313
Homework #4
February 3, 2008

Homework #4

Give a regular expression for the set of all strings on the alphabet {0, 1}, which end with 01.

Answer:

$$(0|1)^*01$$

Give a regular expression for the set of all strings on the alphabet {0, 1}, which contain an even number of 0's.

Answer:

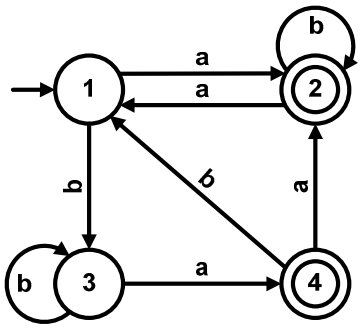
$$1^*(01^*0)^*1^*$$

Give a regular expression for the set of all strings on the alphabet {0, 1}, that every 0 followed by at least one 1.

Answer:

$$1^*(01^+)^*$$

Give the regular expression for the following automaton.



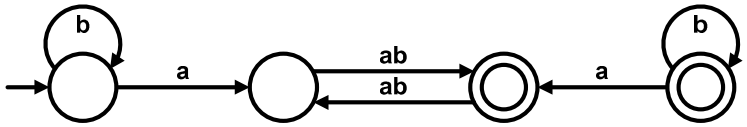
Answer:

Ways to get to the accepting state: $ab^*|b^+a|b^+aab^*$

Ways to get back to the starting state: $ab^*a|b^+ab|b^+aab^*a$

Solution: $(ab^*a|b^+ab|b^+aab^*a)^*(ab^*|b^+a|b^+aab^*)$

Give the regular expression for the following automaton.



Answer:

$b^*a(ab)(abab)^*$