#1 Write a regular expression that defines a C-like comment delimited by /* and */. Individual ‘s and /’s may appear in the comment body, but the pair */ may not.

#2 Write a finite automaton that accepts non-empty strings of a’s, and b’s with the property that if a particular character appears in the string, it must appear two or more times. The following strings are allowed: aa, baabb, bbbb, and aababba. The following strings are not allowed: a, abb, bbba, and bbabb.

#3 Show an NFA that corresponds to the following regular expression:

\[(ab | ba | a)^+\]

Using MakeDeterministic, translate the NFA into a DFA. Optimize this DFA by merging states whenever possible.

#4 Is the set of binary strings (over 0 and 1) that represent even positive integers a regular set? Why? Is the set of binary strings (over 0 and 1) that represent positive integers evenly divisible by 3 a regular set? Why?

#5 Let Delete1 be the operator that systematically removes a single character from a set of strings. For example, Delete1({abc, xy, a, bb}) = {bc, ac, ab, y, x, λ, b}. Let R be any regular expression. Show that Delete1(R) is a regular set.

#6 What regular expression does the following NFA correspond to? Explain how you obtained your answer.