Homework #1
Regular Languages

Question #1

Write regular expressions for each of the following:

a) String over the alphabet \{a,b,c\} with an odd number of a’s
b) Binary numbers multiple of 2 and representing a decimal number greater than or equal to 8
c) Binary numbers greater than 110011
d) Strings of the kind EPX where E is an integer number, P is a lowercase letter from the alphabet and X is an integer greater than 3 and less than 13. Examples: 143a6, 555b12, etc.

Question #2.

Convert the following regular expressions to nondeterministic finite automata.

a) \(a^* (b | c)^* c\)
b) \(((b|a)*|(c|a))*(cb)^*\)
c) \(((baa*)*bc)*d*)^*\)

Question #3

Convert the following NFA to DFA. Show each closure and edge in the process. For a) and b) show the state transition table.

a)