Given the alphabet \( \Sigma = \{0,1,2\} \), let \( L \) be the language denoted by the regular expression \((0|1)^* 2 (0|1)^*\).

(a) Create a DFA from this regular expression.
(b) Construct an NFA that recognizes \( L \) using the state elimination procedure that we went over in class. Show all steps.

2) Provide regular expressions for the following languages:
(a) \( L = \{a^n b^m | n \geq 1, m \geq 1, n \cdot m \geq 4\}\)
(b) \( L = \) all strings having at least two occurrences of substring bbb. Note that bbb fits the criterion.
(c) \( L = \{w | w = ybba^n, n \geq 1, y \in \Sigma^*\}\)

3) Sipser problem 1.13

4) Verify by means of the definition of regular languages, that the following are regular languages over \( \Sigma = \{a,b\}\):
   a) \( \{a^n | n \geq m \} \) where \( m \geq 0 \) (This language contains strings of the regex form \( a^m a^*\))
   b) The language of all strings of a’s and b’s having two or more consecutive a’s. (This language contains strings of the form... ?)

5) Use the state elimination method to convert the following DFA to a regular expression (similar to 1 above)