Staple this assignment sheet to your solutions

1. Construct dfa’s for the following languages
   a. \( L = \{ ab^3wb^2 \mid w \in \{a,b\}^* \} \)
   b. \( L = \{ w \mid n_a(w) \mod 3 = 0 \text{ for } w \in \{a,b\}^* \} \) where \( n_a(w) \) denotes “number of a’s in w.”
   c. \( L = \{ w \in \{0,1\}^* \mid \text{every 00 is immediately followed by a 1} \} \)
   For example 101, 0010, 0010011001 are in L but 0001 and 00100 are not
   d. \( L = \{ w \in \{0,1\}^* \mid \text{all string contain 00 but not 000} \} \). Note that 0000 is not ok.

   Be sure to test your dfa’s well. Use JFLAP

2. Describe the language accepted by the following State-Transition diagrams (there is one on the back)
   a.
b.