Problem 1, part a DFA:

Part b DFA:

Problem 2 (WS1S nonempty intersection) DFA:

Regex: \(((0, 0) \cup (0, 1) \cup (1, 0))^*\)

Problem 3 (WS1S), part a DFA:
The solution for part b is similar to part a, except that the loop (blue) is bigger. The total number of nodes in the loop is \( n \). Only the green state can transition to the accept state. DFA below: