Assignment 3

(Please work in groups of two or three and submit one answer sheet for the group.)

1. Consider the following FA.

(a) List one string of length 4 the FA accepts.
(b) List one string of length 4 the FA rejects.
(c) Explain in succinct but precise English what property of binary strings the FA tests for.

2. Let \(C_n\) denote the set of all binary numbers that are a multiple of \(n\). Show that \(C_5\) is regular. (Hint: find a DFA.)

3. Whina has a DFA with 100 states. She knows that its language includes a string of length 101. Explain why it must be the case that the language of the DFA is infinite.

4. Use the subset construction to produce a DFA equivalent to the following NFA.

Due: Tuesday February 8