1. Sipser 0.7, all three parts (relations that have two but not three of the characteristic properties of equivalence relations). Note: part c is significantly more subtle than parts a and b.

2. Sipser 1.6, parts b, c, f, k. Construction of DFAs.


4. Sipser 1.34. Greater than is regular given specified representation.

5. Construct a DFA that accepts binary strings that represent numbers congruent to 2 mod 3, that is \( \{ n \mid n = k \cdot 3 + 2 \text{ for some integer } k \} \). For example: 2, 5, 8, ..., which are represented in binary as 10, 101, 1000, .... You may assume that \( \epsilon \) represents 0.