CS 311: Computational Structures
Problem Set 1

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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, a,b,c,h. Construction of DFAs.

3. Sipser 1.31. Regular languages closed under reverse.

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 $\{n|n = k * 3 + 2$ for some integer $k\}$. For example: $2, 5, 8, \ldots$, which are represented in binary as $10, 101, 1000, \ldots$. You may assume that ϵ represents 0.