CSE 311 Quiz Section: November 15, 2012

1 Review of Relations

List the ordered pairs in the relation R from $A = \{0, 1, 2, 3, 4\}$ to $B = \{0, 1, 2, 3\}$ where $(a, b) \in R$ iff:

a) $a = b$
b) $a \mid b$
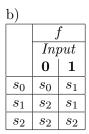c) $\gcd(a, b) = 1$

2 Relational Properties

For each of these relations on the set $\{1, 2, 3, 4\}$, decide whether it is reflexive, whether it is symmetric, whether it is antisymmetric, and whether it is transitive.

a) $\{(2, 2), (2, 3), (2, 4), (3, 2), (3, 3), (3, 4)\}$
b) $\{(1, 1), (2, 2), (3, 3), (4, 4)\}$
c) $\{(1, 2), (2, 3), (3, 4)\}$

3 Finite State Machines

Draw the state diagrams for the finite-state machines with these state tables:

a)

	f	
	Input	
	0	**1**
s_0	s_1	s_0
s_1	s_0	s_2
s_2	s_1	s_1

b)

	f	
	Input	
	0	**1**
s_0	s_0	s_1
s_1	s_2	s_1
s_2	s_2	s_2

What language does this generate if $F = \{s_1\}$?