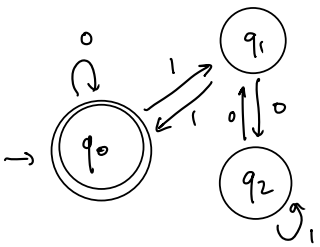
Math 3342 HW #2

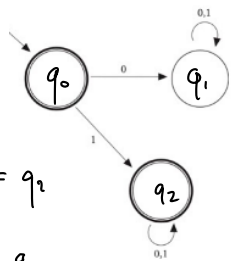
Chapter 2 #5b, 6c,

Chapter 3 #1ab, #9

#5b



#6c $M = (\{q_0, q_1, q_2\}, \{0,1\}, \delta, q_0, \{q_0, q_2\})$

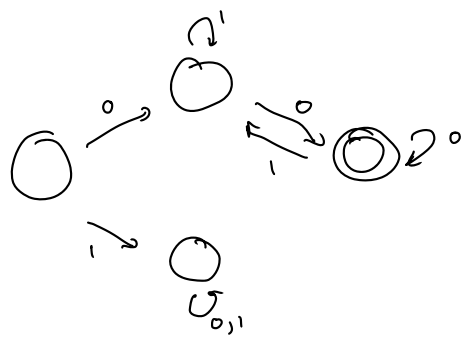


where $\delta(q_0,0) = q_1$ $\delta(q_1,0) = q_1$ $\delta(q_2,0) = q_2$

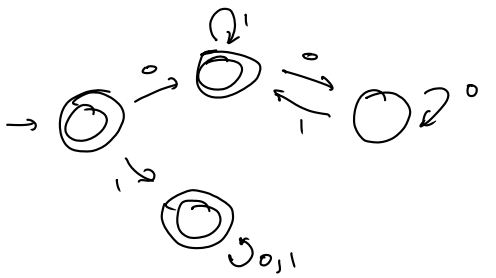
$\delta(q_0,1) = q_2$ $\delta(q_1,1) = q_1$ $\delta(q_2,1) = q_2$

#1ab

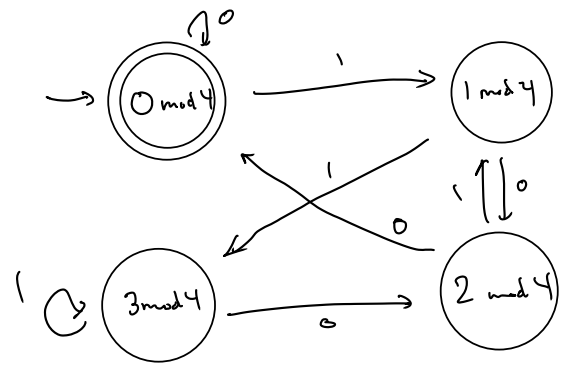
a.



b.



#9 binary #s div by 4



for 1 mod 4: $x = 4k+1$

$2x = 8k+2 = 4(2k)+2$

$2x+1 = 8k+2+1 = 4(2k)+3$

for 2 mod 4 $x = 4k+2$

$2x = 8k+4 = 4(2k+1)$

$2x+1 = 8k+4+1 = 4(2k+1)+1$

for 3 mod 4: $x = 4k+3$

$2x = 8k+6 = 4(2k+1)+2$

$2x+1 = 8k+7 = 4(2k+1)+3$