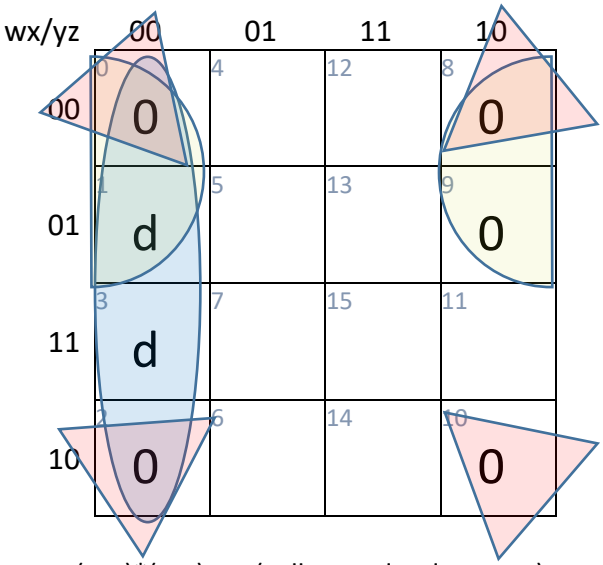
EECS 270, Spring 2023, Homework 5 answers.

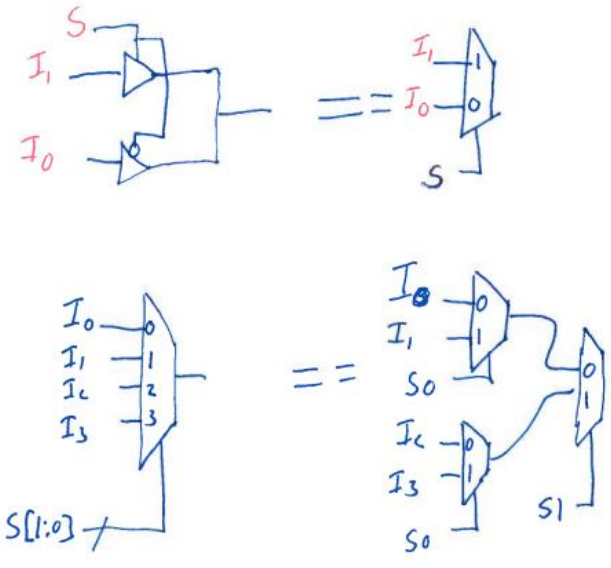
1a)



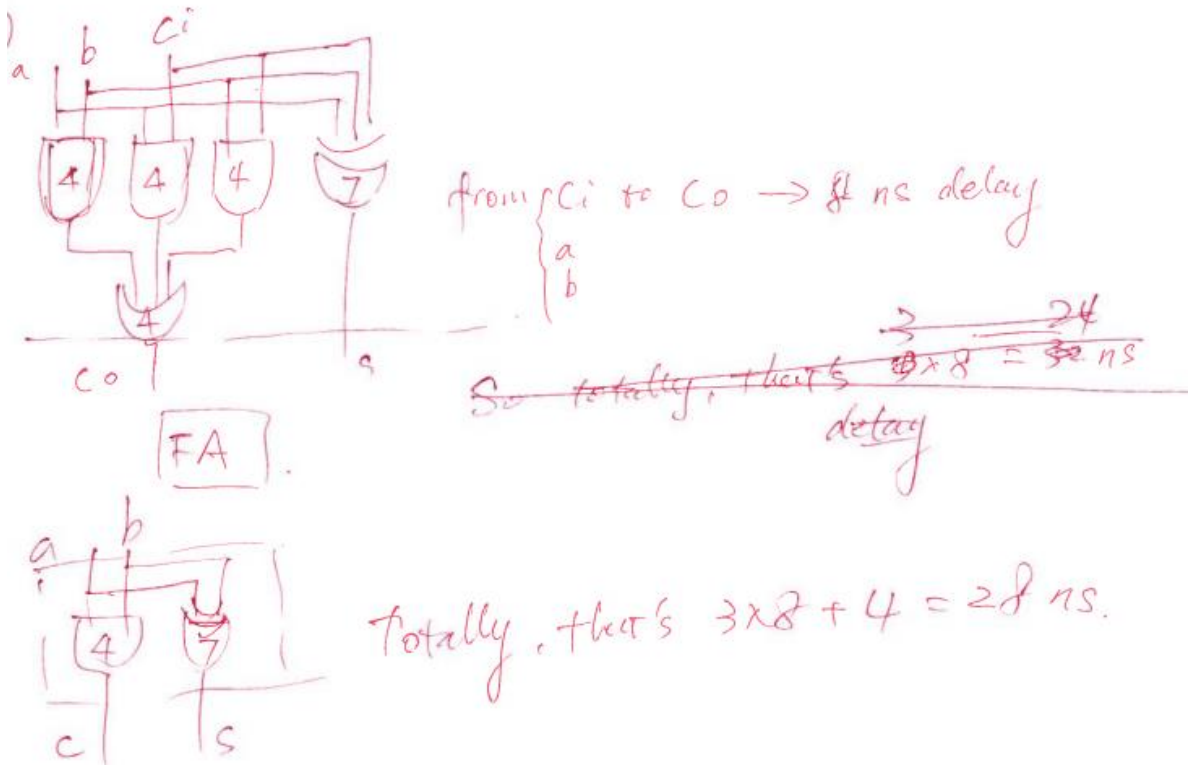
(x+y)*(x+z) ---- (yellow and red corners)

1b) That is (abc)+(!a+!b)+a+b = 1.

2)



3)



4) Goes from figure B with an XOR to figure c with an AND and then OR and then back to to figure b with an XOR. That's 7+4+4+7=22ns.

5)

State	Next State		
	X=0	X=1	Output (W)
ACF	BE	ACF	0
BE	ACF	G	0
D	BE	ACF	1
G	ACF	D	1

6) .

a.

i. $2^{10}*2^{10}/2^{3}=2^{17}$ locations

ii. 17

iii. 10 to the decoder, 7 to the MUX

b. .

i. 2^{18}

ii. 18

iii. 10 to the decoder, 8 to the MUX