CSE 3100

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2-13-22

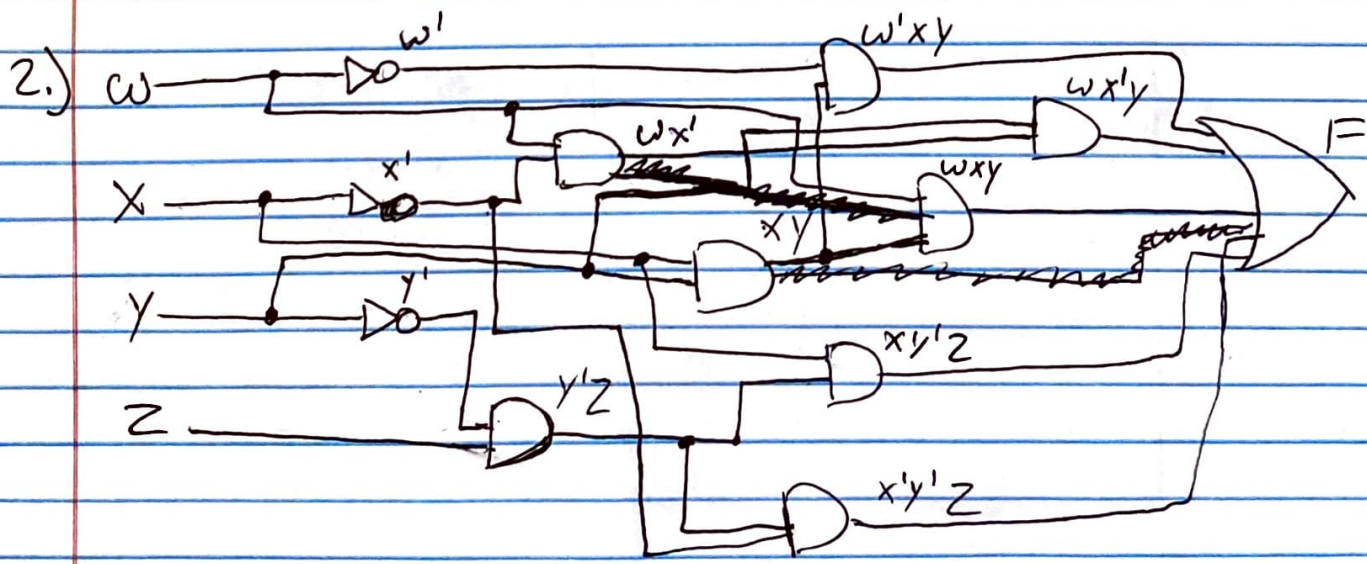
Lab 2

$F = xy'z + x'y'z + w'xy + wxy$

1.) Truth Table

w	x	y	z	xy'z	x'y'z	w'xy	wxy	F
0	0	0	0	0	0	0	0	0
0	0	0	1	0	1	0	0	1
0	0	1	0	0	0	0	0	0
0	0	1	1	0	0	0	0	0
0	1	0	0	0	0	0	0	0
0	1	0	1	1	0	0	0	1
0	1	1	0	0	0	1	0	1
0	1	1	1	0	0	1	0	1
1	0	0	0	0	0	0	0	0
1	0	0	1	0	1	0	0	1
1	0	1	0	0	0	0	1	1
1	0	1	1	0	0	0	1	1
1	1	0	0	0	0	0	0	0
1	1	0	1	1	0	0	0	1
1	1	1	0	0	0	0	0	1
1	1	1	1	0	0	0	0	1

2.)



3.) $F = xy'z + x'y'z + w'xy + wx'y + wxy$

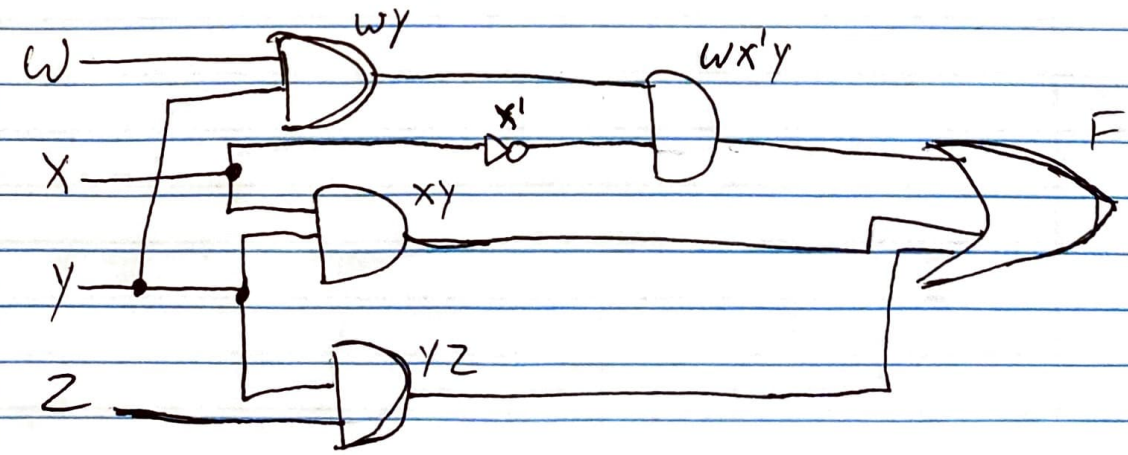
$\Rightarrow y'z(x+x') + xy(w'+w) + wx'y$

$\Rightarrow \boxed{y \cdot z + xy + wx'y}$

4.) Truth Table

w	x	y	z	yz	x'y	wx'y	F
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0
0	0	1	0	0	0	0	0
0	0	1	1	1	0	0	1
0	1	0	0	0	0	0	0
0	1	0	1	0	0	0	0
0	1	1	0	0	1	0	1
0	1	1	1	1	1	0	1
1	0	0	0	0	0	0	0
1	0	0	1	0	0	0	0
1	0	1	0	0	0	1	1
1	0	1	1	1	0	1	1
1	1	0	0	0	0	0	0
1	1	0	1	0	0	0	0
1	1	1	0	0	1	0	1
1	1	1	1	1	1	0	1

5.)



The number of Not gates reduced to 1 from 3

The number of And gates reduced to 4 from 8