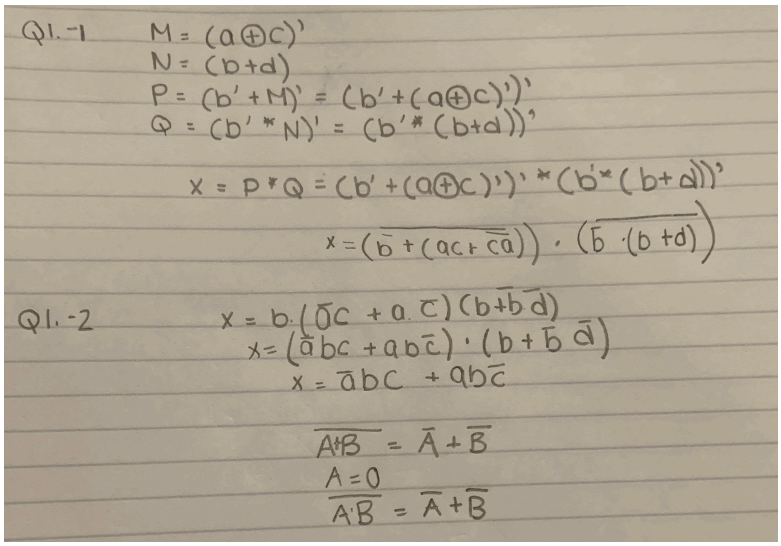
Anushka Chougule
Homework #5
Feb 25, 2025

Q1-1 and Q1-2.



Q2-1.

Inputs: Outputs:

x	**y**	**z**	**A**	**B**	**C**
0	0	0	0	1	0
0	0	1	0	1	1
0	1	0	1	0	0
0	1	1	1	0	1
1	0	0	0	1	1
1	0	1	1	0	0
1	1	0	1	0	1
1	1	1	1	1	0

Q2-2.

A’s K-Map

z/xy	**00**	**01**	**11**	**10**
0	0	1	1	0
1	0	1	1	1

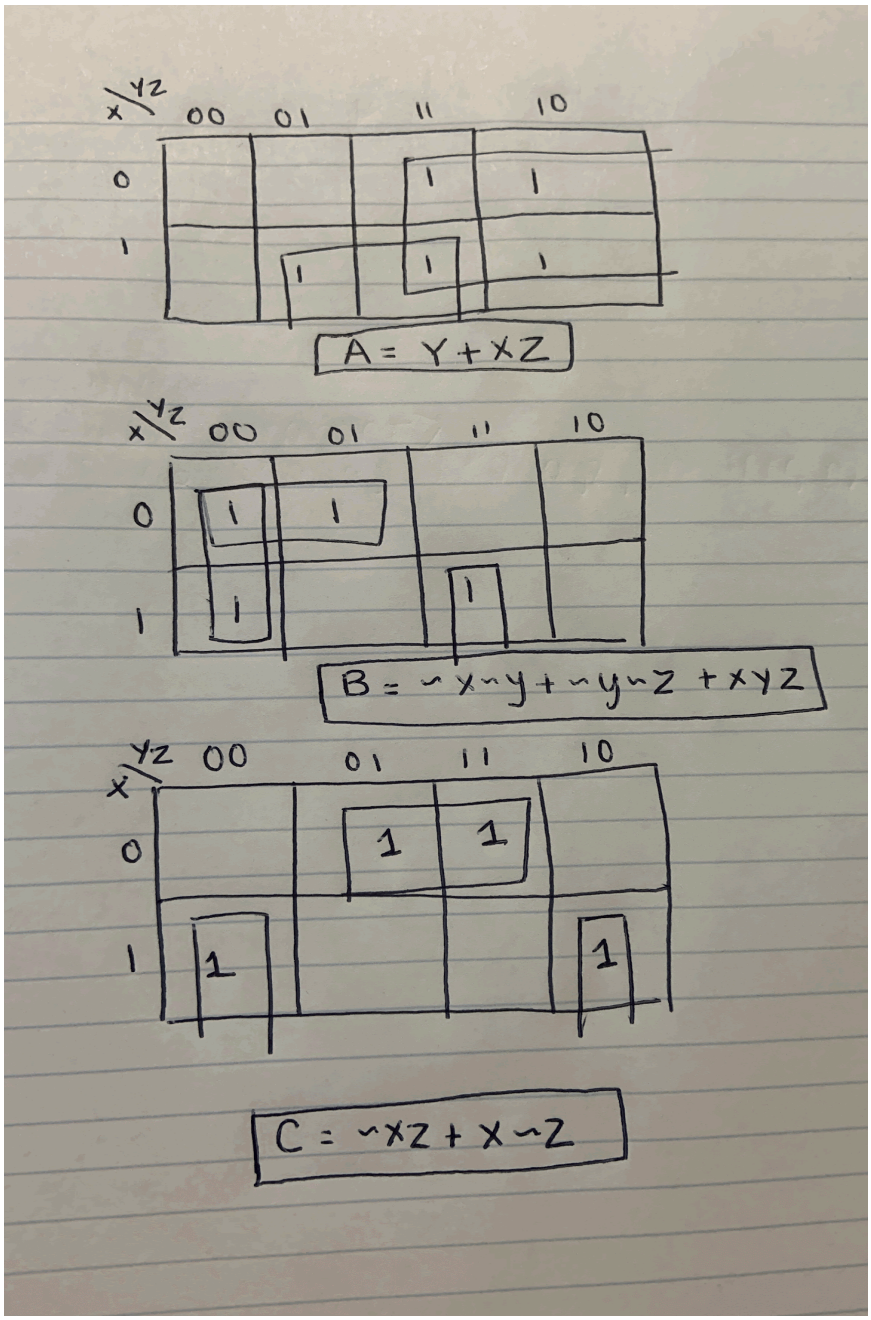
B’s K-Map

z/xy	**00**	**01**	**11**	**10**
0	1	0	0	1
1	1	0	1	0

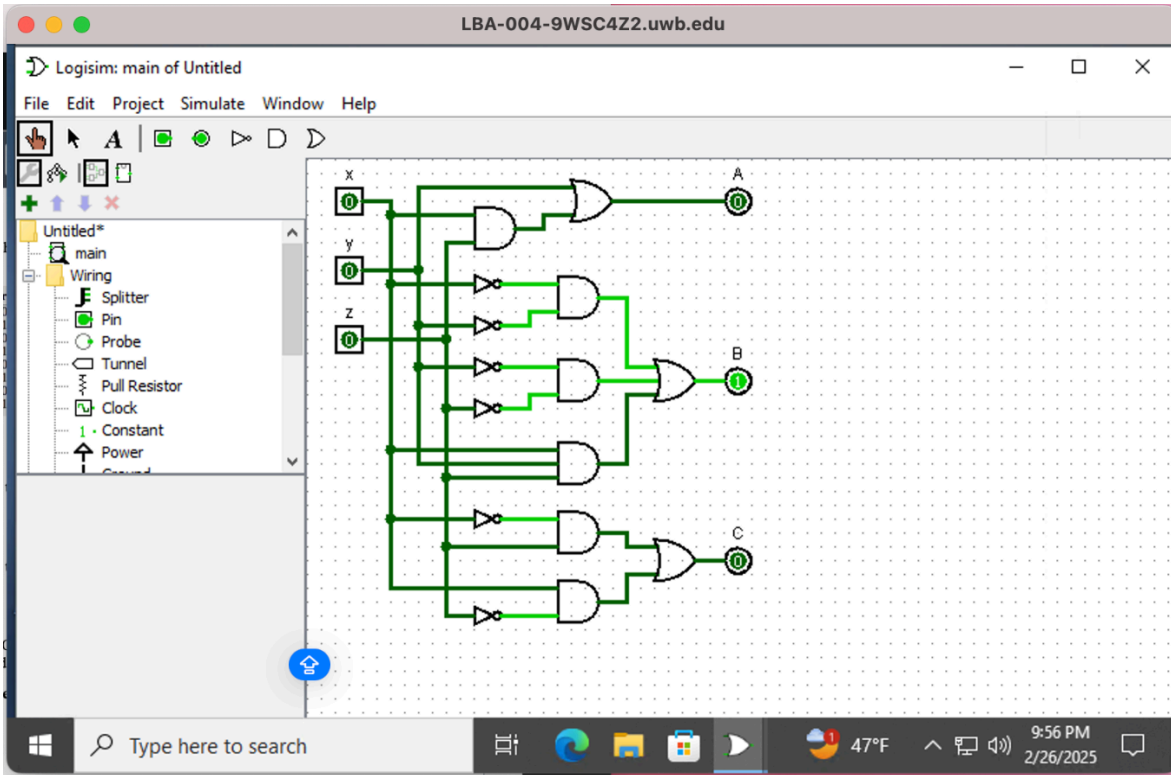
C’s K-Map

z/xy	**00**	**01**	**11**	**10**
0	0	0	1	1
1	1	1	0	0

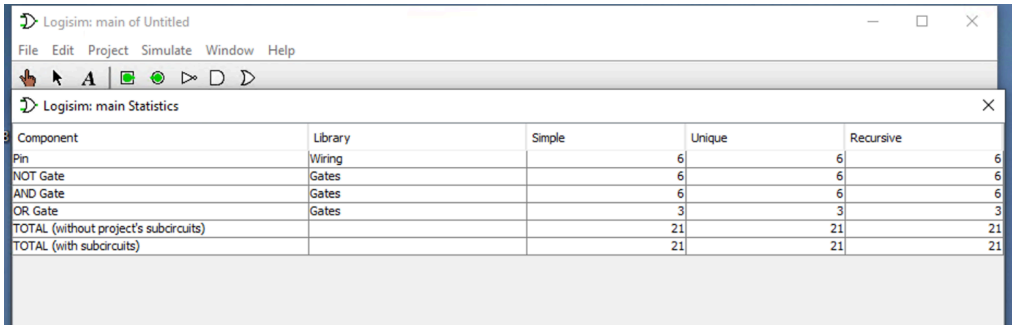
Q2-3.



Q2-4.



Q2-5.



Component	Library	Simple	Unique	Recursive
Pin	Wiring	6	6	6
NOT Gate	Gates	6	6	6
AND Gate	Gates	6	6	6
OR Gate	Gates	3	3	3
TOTAL (without project's subcircuits)		21	21	21
TOTAL (with subcircuits)		21	21	21

Q3-1.

A	**B**	**= C**	**A1**	**A0**	**B1**	**B0**	**C3**	**C2**	**C1**	**C0**
0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	0	0	0	0
0	2	0	0	0	1	0	0	0	0	0
0	3	0	0	0	1	1	0	0	0	0
1	0	0	0	1	0	0	0	0	0	0
1	1	1	0	1	0	1	0	0	0	1
1	2	2	0	1	1	0	0	0	1	0
1	3	3	0	1	1	1	0	0	1	1
2	0	0	1	0	0	0	0	0	0	0
2	1	2	1	0	0	1	0	0	1	0
2	2	4	1	0	1	0	0	1	0	0
2	3	6	1	0	1	1	0	1	1	0
3	0	0	1	1	0	0	0	0	0	0
3	1	3	1	1	0	1	0	0	1	1
3	2	6	1	1	1	0	0	1	1	0
3	3	9	1	1	1	1	1	0	0	1

Q3-2.

C0=A0B0 + A1A0B1B0 + A1A0B1B0 =A0B0
C3=A1A0B1B0

Q3-3.

A1A0 / B1B0	**00**	**01**	**11**	**10**
00	0	0	0	0
01	0	0	0	0
11	0	0	0	1
10	0	0	1	1

C2=A1B0(A0+B0)’

Q3-4.

A1A0 / B1B0	**00**	**01**	**11**	**10**
00	0	0	0	0
01	0	0	1	1
11	0	1	0	1
10	0	1	1	0

C1=A1B0(A0B1)’+A0B1(A1B0)’

Q3-5.

Q3-6.