Logic Circuit Design Homework #02

Due date	Apr. 15th, 2024	Instructor	Yoo, Younghwan
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1. Write a Boolean equation in sum-of-products canonical form for each of the truth tables.

(a)

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

(b)

A	B	C	Y
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	0

(c)

A	B	C	Y
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	1

2. Minimize each of the Boolean equations from Problem 1 using Boolean theorems. Show the minimization process.

3. Simplify each of the following Boolean equations. Sketch a combinational circuit implementing the simplified equation.

(a) $Y = BC + \bar{A}\bar{B}\bar{C} + B\bar{C}$

(b) $Y = \overline{A + \bar{A}B + \bar{A}\bar{B}} + \overline{A + \bar{B}}$

4. Write a minimized Boolean equation for the function performed by the circuit in the figure below: