

CIS 351 Sample CL2 Problem Solutions

Tue 2nd Sept, 2025

CL2: Boolean Expressions

- (a) Complete the truth table below so that it describes the output of the Boolean expression.

x	y	z	$(\overline{xy})(\overline{z})$
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	0

- (b) Complete the truth table below so that it describes the output of the Boolean expression.

x	y	z	$xy + \bar{z}$
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

- (c) Write a Boolean expression in sum-of-product form that describes the following truth table:

x	y	z	
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	1

$\bar{x}\bar{y}z + \bar{x}y\bar{z} + xy\bar{z} + xyz$

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