

## Lab #1 (Boolean Logic)

HINT: Don't THINK like a human, THINK like a chip! Simply "run" the expression!

Name: \_\_\_\_\_

Section/Time: \_\_\_\_\_

Date: \_\_\_\_\_

KEY:

Symbol	$\cdot$	$+$	$\bar{n}$
Meaning	AND	OR	NOT (n)

Complete the following table:

	x	0	0	1	1
	y	0	1	0	1
Function	Expression	Result			
CONSTANT 0	0	0	0	0	0
x AND y	$x \cdot y$	0	0	0	1
x AND (NOT y)	$x \cdot \bar{y}$	0	0	1	0
x	$x$	0	0	1	1
(NOT x) AND y	$\bar{x} \cdot y$	0	1	0	0
y	$y$	0	1	0	1
x XOR y	$x \cdot \bar{y} + \bar{x} \cdot y$	0	1	1	0
x OR y	$x + y$	0	1	1	1
x NOR y	$\overline{x + y}$	1	0	0	0
Equivalence (x == y)	$x \cdot y + \bar{x} \cdot \bar{y}$	1	0	0	1
NOT y	$\bar{y}$	1	0	1	0
IF y THEN x	$x + \bar{y}$	1	0	1	1
NOT x	$\bar{x}$	1	1	0	0
IF x THEN y	$\bar{x} + y$	0	1	0	1
x NAND y	$\overline{x \cdot y}$	1	0	0	0
CONSTANT 1	1	1	1	1	1