Lab #1 (Boolean Logic)

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

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KEY:

Symbol	·	+	$\overline{n}$
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**)	$x \cdot \overline{y}$	0	0	1	0
x	x	0	0	1	1
(*NOT* **x**) *AND* **y**	$\overline{x} \cdot y$	0	1	0	0
y	y	0	1	0	1
x *XOR* **y**	$x \cdot \overline{y} + \overline{x} \cdot y$	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**)	$x \cdot y + \overline{x} \cdot \overline{y}$	0	0	0	0
NOT **y**	$\overline{y}$	1	0	1	0
IF **y** *THEN* **x**	$x + \overline{y}$	0	0	1	1
NOT **x**	$\overline{x}$	1	1	0	0
IF **x** *THEN* **y**	$\overline{x} + y$	0	1	0	1
x *NAND* **y**	$\overline{x \cdot y}$	1	1	1	0
CONSTANT **1**	1	1	1	1	1