Santa Clara University	COEN 21 – Winter 2022	Name: TUSHAR SHREYASTAV
Homework #1		
Please scan and upload your completed homework on Camino | Due Date: 1/7/2022		

Draw the (1) truth table; (2) Boolean expressions, and (3) logic gates symbol/schematic for each of the following:

- 2-input AND gate
- 2-input OR gate
- 2-input NAND gate
- 2-input NOR gate
- 2-input Exclusive-OR gate
- 2-input Exclusive-NOR gate
- NOT gate

• 2-input AND GATE

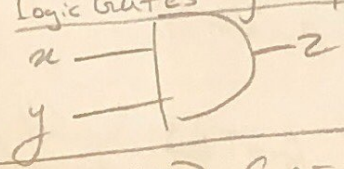
1) Truth table

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

2) Boolean Expression

$z = x \cdot y = xy$

3) Logic Gates Symbol/schema



• 2-input OR GATE

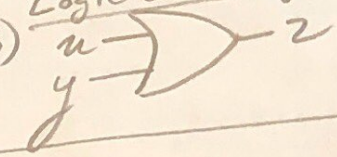
1) Truth Table

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

2) Boolean Expression

$z = x + y$

3) Logic Gates Symbole/schema



• 2 input NAND GATE

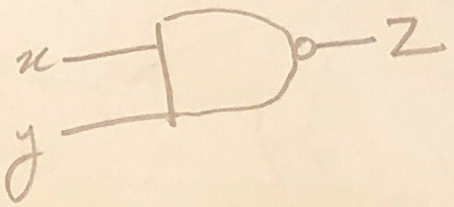
1) Truth Table

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

2) Boolean Expression

$z = \overline{x \cdot y}$

3) logic gates symbol/schema



• 2 input - NOR GATE

1) TRUTH TABLE

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

2) Boolean Expression

$$z = \overline{x + y}$$

3) Logic GATES Symbol / Schema

• 2-input-exclusive-NOR GATE

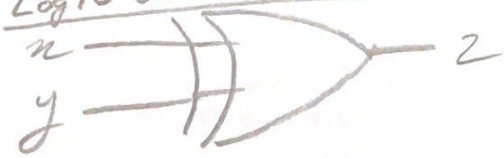
1) TRUTH TABLE

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

2) Boolean Expression

$$z = x \oplus y$$

3) Logic GATES Symbol / Schema



• 2 input - exclusive-NOR-GATE

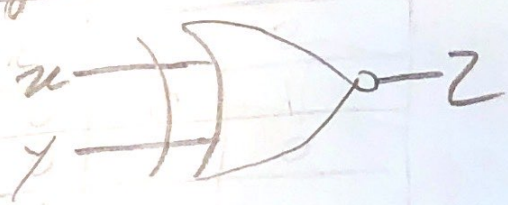
1) TRUTH TABLE

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

2) Boolean Expression

$$z = \overline{X \oplus Y}$$

3) Logic GATES Symbol / Schema



• NOT GATE

1) TRUTH TABLE

x	y
0	1
1	0

2) Boolean Expression

$$y = \overline{x}$$

3) Logic GATES Symbol / Schema