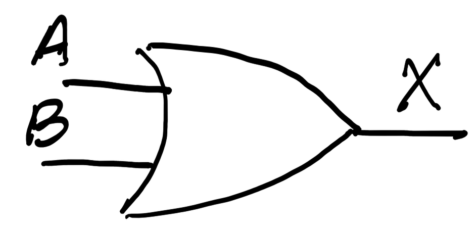
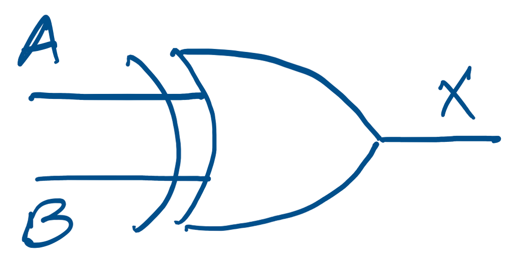
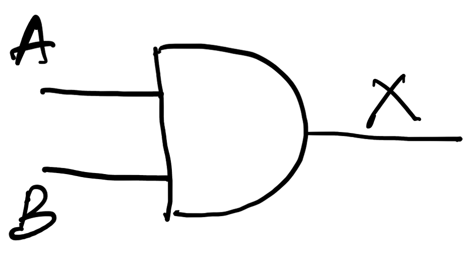
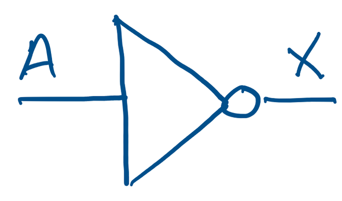
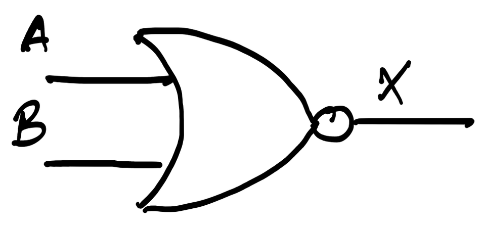
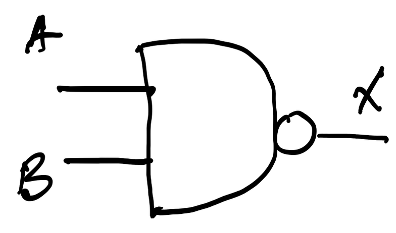
Logic Gates and Circuits

Saturday, 4 September 2021 5:10 PM

> Why computer works in binary?
>
> Computers are made of Logic circuits, which take input in binary, so computer uses/knows only binary.

MIL. Symbols	Logic	Operator	Statement	Logic Expression
1. 	OR	+	X= (A+B)	X=1, IF (A OR B)
2. 	XOR	⊕	X= (A⊕B)	X=1, IF (A XOR B)
3. 	AND	*	X= (AB)	X=1, IF (A AND B)
4. 	NOT Inverter	'	X= A'	X = 1, IF NOT A
5. 	NOR	(+)'	X= (A+B)'	X=1 , IF NOT (A OR B)
6. 	NAND	(*)'	X= (AB)'	X=1, IF NOT (A AND B)

Truth Table

1. OR

A	B	X
0	0	0
0	1	1
1	0	1
1	1	1

2. XOR

A	B	X
0	0	0
0	1	1
1	0	1
1	1	0

3. AND

A	B	X
0	0	0
0	1	0
1	0	0
1	1	1

4. NOT

A	X
0	1
1	0

5. NOR

A	B	X
0	0	1
0	1	0
1	0	0
1	1	0

6. NAND

A	B	X
0	0	1
0	1	1
1	0	1
1	1	0

1. Used to create memories.
2. UNIVERSAL GATES.

* Universal gates are used to create any other gate or circuit.
* Building Blocks (Topic)

Steps to learn Logic Gates:

✓ 1. knowing logic gates.

✓ 2. Drawing proper circuits.

3. Mathematical Statements.
4. Logic expressions.
5. Truth Tables and Real World Scenarios.
6. Building Blocks.

Circuit Drawing:

Proper Circuits drawing:

1. No diagonal lines
2. No lines overlapping.
3. Proper gates' shapes.