







^{CPU}
Q. Why Computer only understands binary?
A. Because Computer is made up of circuits/Logic Gates and they use 0s and 1s.

MIL SYMBOLS	LOGIC	Math. Operator	Mathematical Shape	Logical Shape
	AND	$*$ Asterisk	$X = (AB)$ $X = (A \cdot B)$ $X = (A \times B)$	$X = 1$, IF (A AND B).
	OR	$+$	$X = (A+B)$	$X = 1$, IF (A OR B).
	Exclusive OR. XOR	\oplus	$X = (A \oplus B)$	$X = 1$, IF (A XOR B).
	NOT	$'$	$X = A'$	$X = 1$, IF NOT A

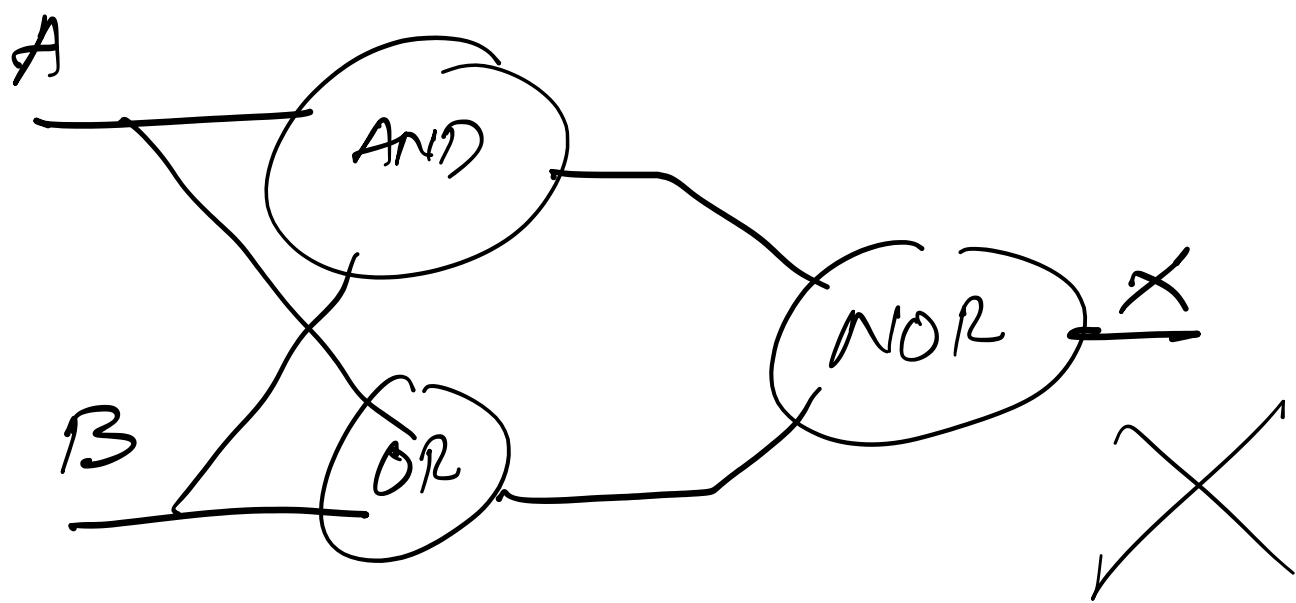
	NAND	$*$	$X = (AB)'$	$X = 1$, IF (A NAND B).
	NOR	$+$	$X = (A+B)'$	$X = 1$, IF (A NOR B).

UNIVERSAL GATES. (BUILDING BLOCKS)

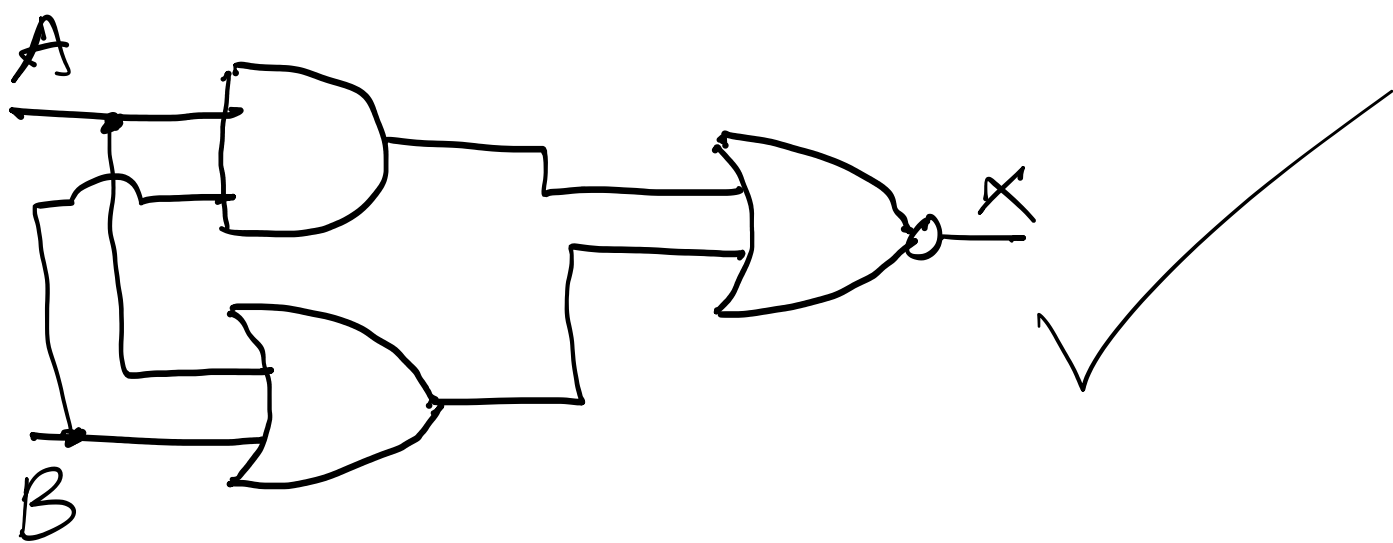
TRUTH TABLE:

		AND 	OR 	XOR 	NOT 	NAND 	NOR 	
A	B	AB	A+B	A⊕B	A'	B'	(AB)'	(A+B)'
0	0	0	0	0	1	1	1	1
0	1	0	1	1	1	0	1	0
1	0	0	1	1	0	1	1	0
1	1	1	1	0	0	0	0	0

Circuits: Combination of Logic Gates with a purpose.



- Avoid:
1. Improper Shapes.
 2. No diagonal Lines
 3. No unnecessary overlaps.



Logic Gates: Stages of Learning.

- a. Knowing gates and drawing circuits.
- b. Making equation from circuits and visa versa.
- c. Making logic expressions and visa versa.
- d. Building Blocks (NAND and NOR Logic).
- e. Truth Tables
- f. Past papers.