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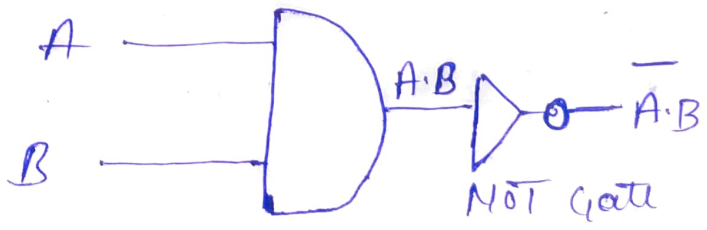
Q1 A NAND ("NOT AND gate") is a logic gate that produces a low output (0) only if all its inputs are true, and high output (1) otherwise. Hence the NAND gate is the inverse of AND gate ; and its circuit is produced by connecting an AND gate to a NOT gate. Just like an AND gate, a NAND Gate may have any number of input probes But only output probe.

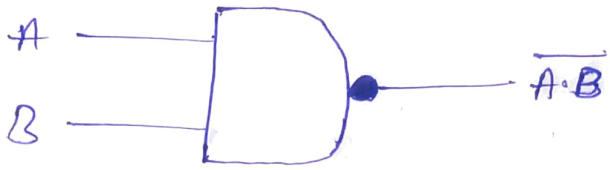
The NAND gates perform the logical NAND operation. NAND gates are know as universal gates (along with NOR gates), which means they are a type of logic gate which can implement any Boolean function without the need to use any other gate type.

The Basic logical construction of the NAND Gate



AND Gate

The Symbol of a NAND Gate



NAND Gate

NAND Gate Truth TABle

NAND Gates means "NOT AND gate", hence the Output of this gate is Just Reverse of that of a similar AND Gate.

that the output of the AND gate is only high or 1 when all the Inputs are high or 1. In all other cases the output of the AND Gate is low or 0.

In the NAND, the fact is the opposite, here the output is only logical 0 when and only when all inputs of the gate is, & in all others cases, the output of the NAND gate is high or 1. The truth of a 2 Input NAND gate can be Represented as:

Inputs		Output
A	B	$x = \overline{A \cdot B}$
0	0	1
0	1	1
1	0	1
1	1	0

that this is just the Reverse of the truth table of an AND gate. The truth table of an AND gate is give below for Reference:

Input		Output
A	B	$X = A \cdot B$
0	0	0
0	1	0
1	0	0
1	1	1

Like AND gate a NAND gate can also be more than two inputs; like 3, 4, input NAND Gate.