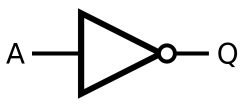
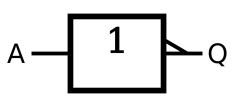
NOT

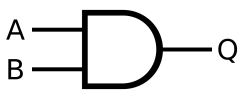




Q = $\overline{A}$

A	$\overline{A}$
0	1
1	0

AND

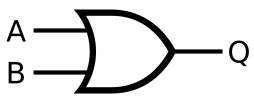


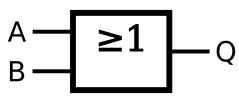
Q = $A.B$

A	B	$A.B$
0	0	0
0	1	0
1	0	0
1	1	1

Commutativité	x.y = y.x
Associativité	(x.y).z = x.(y.z)
Élément neutre “1”	x.1 = x
Élément absorbant “0”	x.0 = 0
Idempotence	x.x = x
Complémentation	$\overline{x}.x$ = 0
Double complémentation	$\overline{\overline{x}}.x$ = x.x = x

OR





Q = $A + B$

A	B	$A + B$
0	0	0
0	1	1
1	0	1
1	1	1

Commutativité	x + y = y + x
Associativité	(x + y) + z = x + (y + z)
Élément neutre “0”	x + 0 = x
Élément absorbant “1”	x + 1 = 1
Idempotence	x + x = x
Complémentation	$\overline{x} + x$ = 1

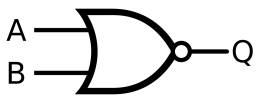
NAND

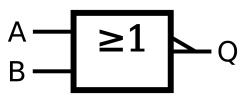
Q = $\overline{A.B}$
= $\overline{A} + \overline{B}$

A	B	$\overline{A.B}$
0	0	1
0	1	1
1	0	1
1	1	0

$\overline{A.B.C.D} = \overline{A} + \overline{B} + \overline{C} + \overline{D}$

NOR



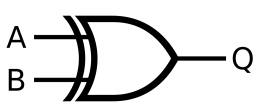


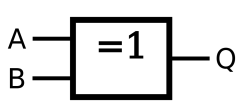
Q = $\overline{A + B}$
= $\overline{A}.\overline{B}$

A	B	$\overline{A + B}$
0	0	1
0	1	0
1	0	0
1	1	0

$\overline{A + B + C + D} = \overline{A}.\overline{B}.\overline{C}.\overline{D}$

XOR

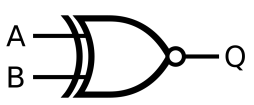


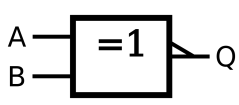


Q = $A \oplus B$
= $\overline{A}.B + A.\overline{B}$

A	B	$A \oplus B$
0	0	0
0	1	1
1	0	1
1	1	0

NXOR (XNOR)





Q = $A \odot B$
= $\overline{A \oplus B}$
= $\overline{A}.\overline{B} + A.B$

A	B	$A \odot B$
0	0	1
0	1	0
1	0	0
1	1	1

$A + A.B = A$

$A + A.B = A.(1 + B)$
$= A.1$
$= A$

$A + \overline{A}.B = A + B$

$A + \overline{A}.B = A + A.B + \overline{A}.B$
$= A + B.(A + \overline{A})$
$= A + B.1$
$= A + B$

$(A + B).(A + C) = A + B.C$

$(A + B).(A + C) = A.A + A.C + B.A + B.C$
$= A + A.C + B.A + B.C$
$= A.1 + A.C + B.A + B.C$
$= A.(1 + C + B) + B.C$
$= A.(1) + B.C$
$= A + B.C$