AND: AB

OR: $A+B$

Not: $\bar{A}$

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

$$\overline{(A+B)} \equiv \bar{A}\bar{B}$$

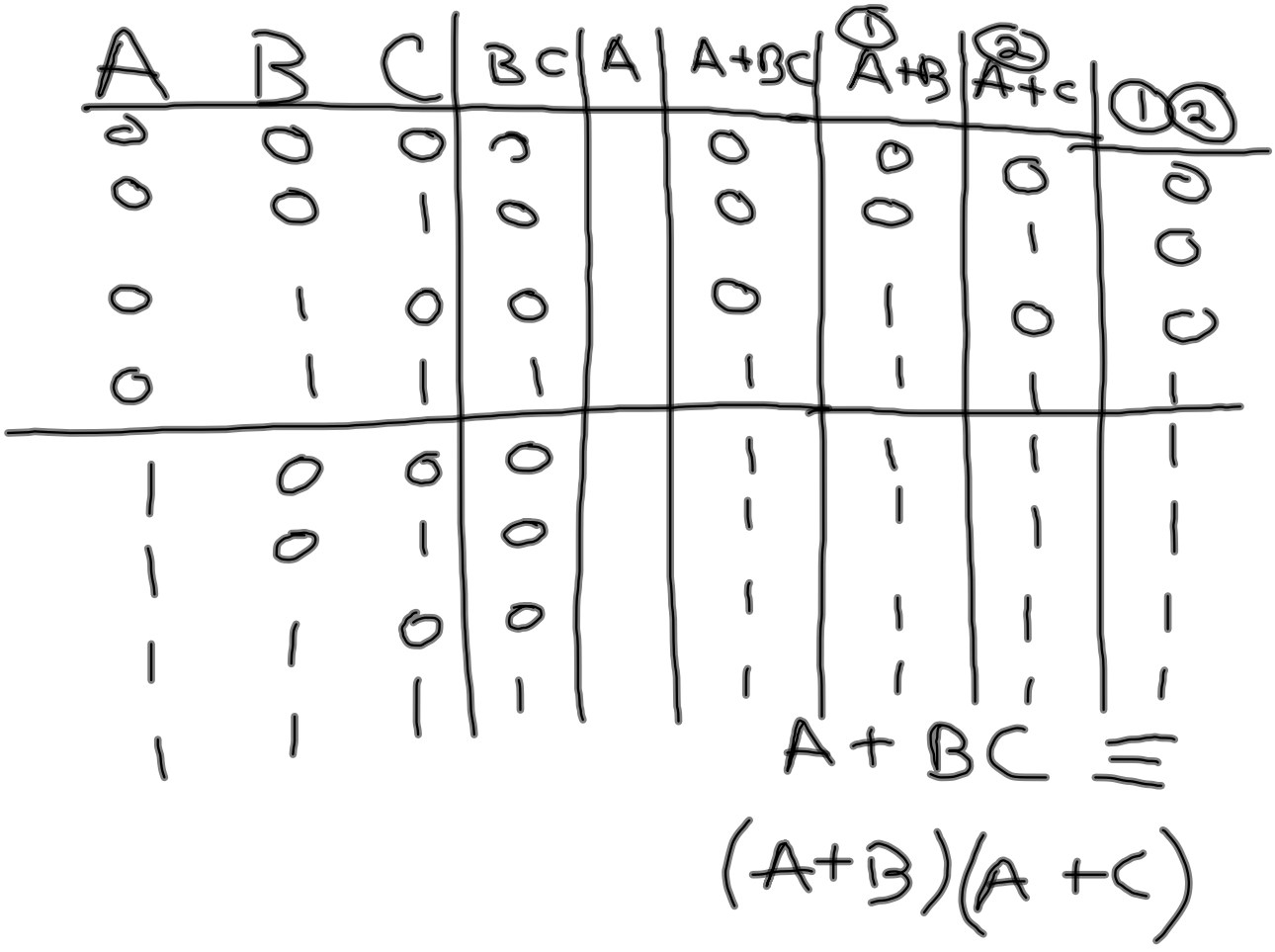
also

$$\overline{AB} \equiv \bar{A} + \bar{B}$$

DeMorgan's Law

$$\bar{A}\bar{B} \neq \overline{AB}$$

A	B	$\bar{A}\bar{B}$	AB	$\overline{AB}$
0	0	1	0	1
0	1	0	0	1
1	0	0	0	1
1	1	0	1	0


A B C BC A A+BC A+B A+C ① ② ① ②
A + BC ≡
(A+B)(A+C)

A	B	F	f_1	f_2
0	0	1	1	0
0	1	0	0	0
1	0	1	0	1
1	1	0	0	0

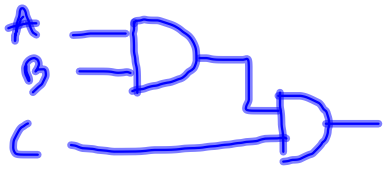
$$F = f_1 + f_2$$

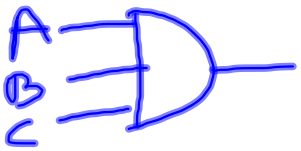
$$f_1 = \bar{A}\bar{B} \quad f_2 = A\bar{B}$$

$$F = \bar{A}\bar{B} + A\bar{B}$$

A	B	C	F
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

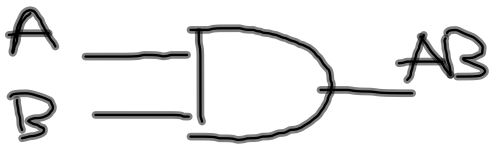
$$F = \bar{A}BC + A\bar{B}C + AB\bar{C} + ABC$$



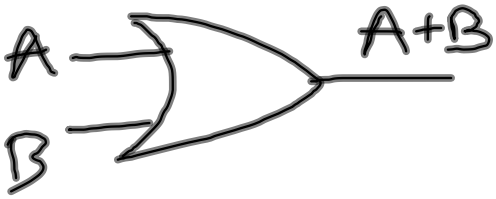


Gates

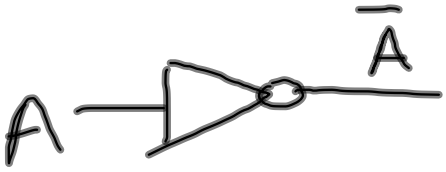
AND



OR



NOT

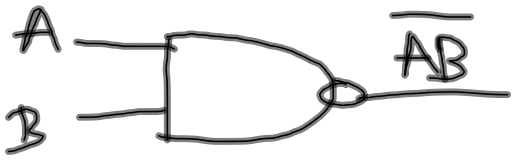


logisim

AND/OR/NOT

computationaly complete set of operators

NAND gate



create AND, OR, NOT

NOT:

A $\quad\quad$ $\bar{A}$

$AA \equiv A$

$\overline{AA} \equiv \bar{A}$

AND: $AB \equiv \overline{\overline{AB}}$ (NOT, NAND)

$\overline{AB} \equiv \bar{A} + \bar{B}$

OR: $A + B \equiv \overline{\bar{A}\bar{B}}$

$\overline{A+B} \equiv \bar{A}\bar{B}$