SISTEMAS DIGITAIS

Tabelas da verdade que representam expressões lógicas e circuitos

$$S = A\,.\,B\,.\,C + A\,.\,D + A\,.\,B\,.\,D$$

A	B	C	D	A.B.C	A.D	A.B.D	S
0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0
0	0	1	0	0	0	0	0
0	0	1	1	0	0	0	0
0	1	0	0	0	0	0	0
0	1	0	1	0	0	0	0
0	1	1	0	0	0	0	0
0	1	1	1	0	0	0	0
1	0	0	0	0	0	0	0
1	0	0	1	0	1	0	1
1	0	1	0	0	0	0	0
1	0	1	1	0	1	0	1
1	1	0	0	0	0	0	0
1	1	0	1	0	1	1	1
1	1	1	0	1	0	0	1
1	1	1	1	1	1	1	1

$$S = \overline{A} + B + A \,.\, B \,.\, \overline{C}$$

A	B	C	$\overline{A}$	B	$A\,.\,B\,.\,\overline{C}$	S
0	0	0	1	0	0	1
0	0	1	1	0	0	1
0	1	0	1	1	0	1
0	1	1	1	1	0	1
1	0	0	0	0	0	0
1	0	1	0	0	0	0
1	1	0	0	1	1	1
1	1	1	0	1	0	1

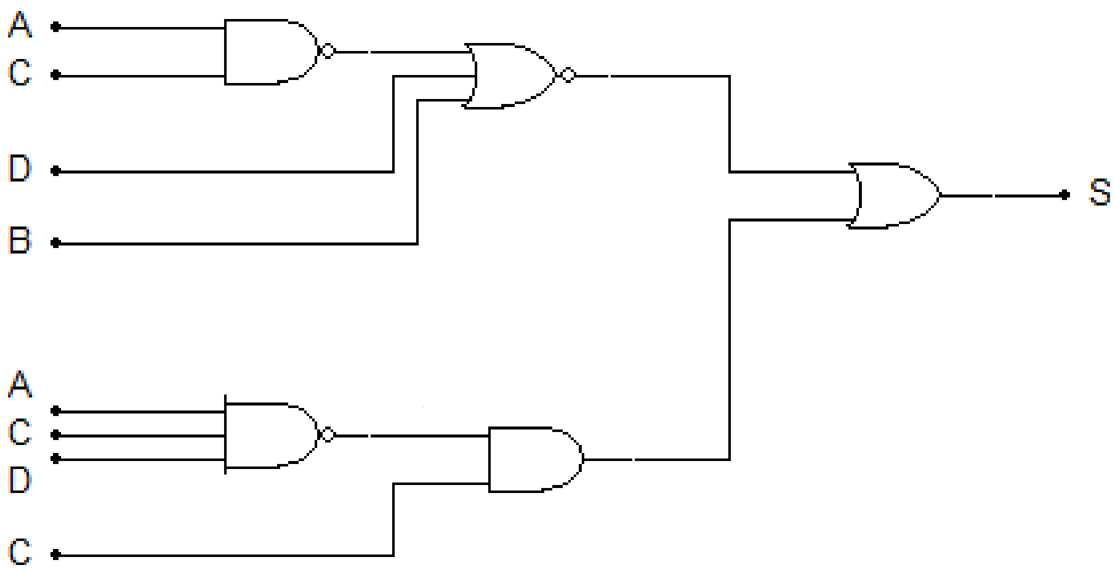
$$S = (A + B).(\overline{B.C})$$

A	B	C	$A + B$	$\overline{B.C}$	S
0	0	0	0	1	0
0	0	1	0	1	0
0	1	0	1	1	1
0	1	1	1	0	0
1	0	0	1	1	1
1	0	1	1	1	1
1	1	0	1	1	1
1	1	1	1	0	0

$$S = A\,.\,B\,.\,C + A\,.\,\overline{B}\,.\,C + \overline{A}\,.\,\overline{B}\,.\,C + \overline{A}\,.\,\overline{B}\,.\,\overline{C}$$

A	B	C	$A\,.\,B\,.\,C$	$A\,.\,\overline{B}\,.\,C$	$\overline{A}\,.\,\overline{B}\,.\,C$	$\overline{A}\,.\,\overline{B}\,.\,\overline{C}$	S
0	0	0	0	0	0	1	1
0	0	1	0	0	1	0	1
0	1	0	0	0	0	0	0
0	1	1	0	0	0	0	0
1	0	0	0	0	0	0	0
1	0	1	0	1	0	0	1
1	1	0	0	0	0	0	0
1	1	1	1	0	0	0	1

Estudar o comportamento do circuito:



$$S = \left(\overline{A \cdot C} + D + B\right)' + C \cdot (A \cdot C \cdot D)'$$

$$S = \left(\overline{A\,.\,C} + D + B\right)' + C\,.\,(A\,.\,C\,.\,D)'$$

A	B	C	D	$\overline{A\,.\,C}$	$\left(\overline{A\,.\,C} + D + B\right)'$	$C\,.\,(A\,.\,C\,.\,D)'$	S
0	0	0	0	1	0	0	0
0	0	0	1	1	0	0	0
0	0	1	0	1	0	1	1
0	0	1	1	1	0	1	1
0	1	0	0	1	0	0	0
0	1	0	1	1	0	0	0
0	1	1	0	1	0	1	1
0	1	1	1	1	0	1	1
1	0	0	0	1	0	0	0
1	0	0	1	1	0	0	0
1	0	1	0	0	1	1	1
1	0	1	1	0	0	0	0
1	1	0	0	1	0	0	0
1	1	0	1	1	0	0	0
1	1	1	0	0	0	1	1
1	1	1	1	0	0	0	0