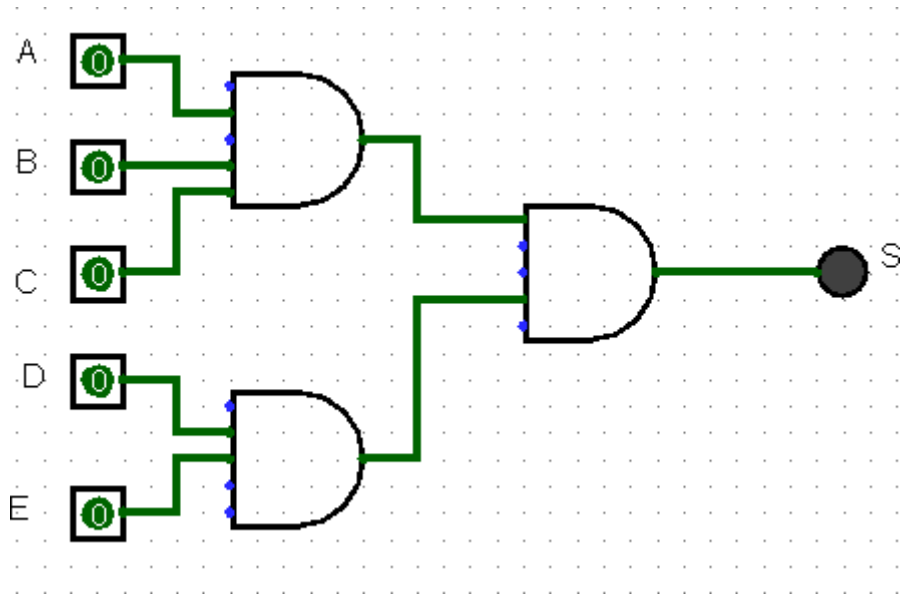
Respostas Exercícios Portas Lógicas
Álgebra Booleana – parte 2

1) Dado o circuito abaixo faça a tabela verdade e a expressão booleana

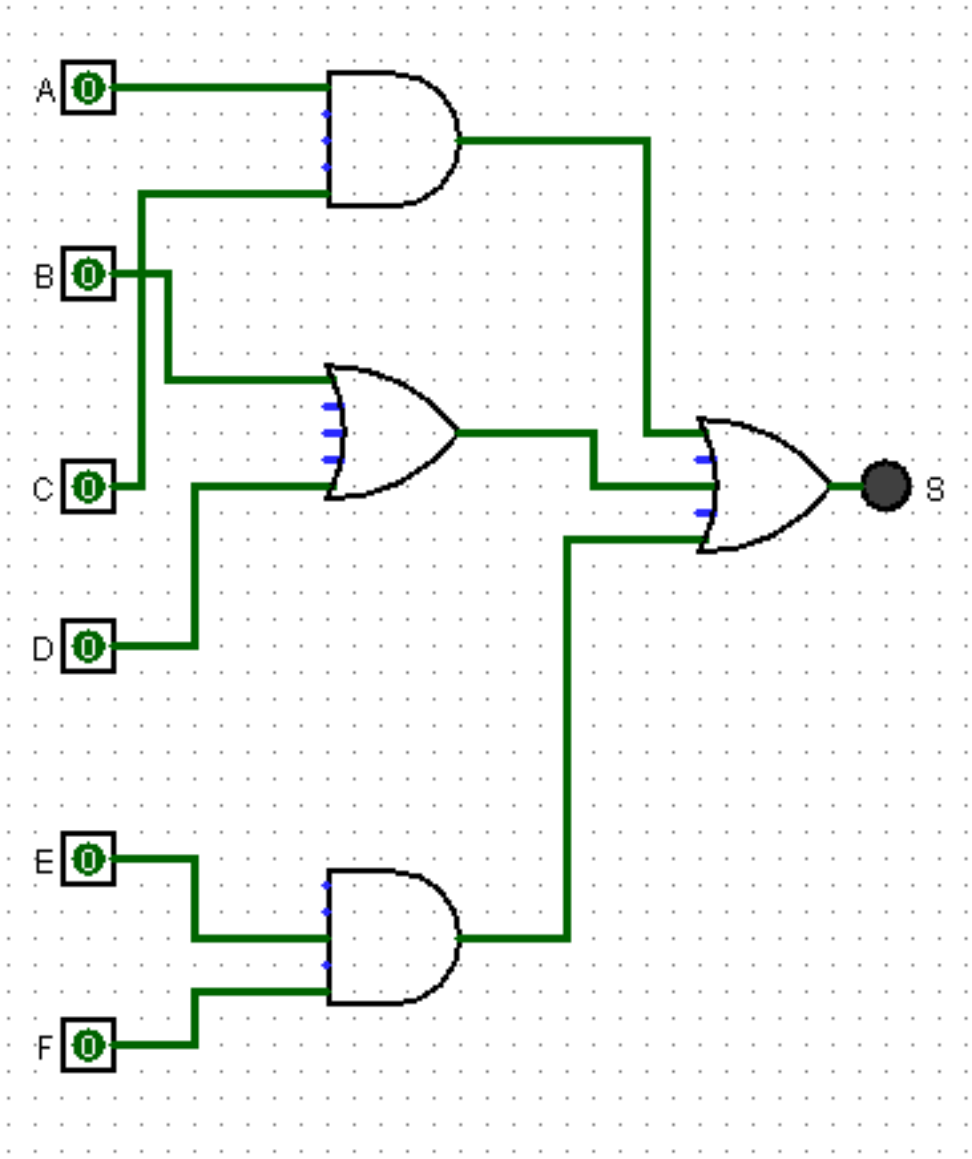


S = (ABC) . (DE)

A	B	C	D	E	S1	S2	S
0	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	1	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	1	0
0	1	0	0	0	0	0	0
0	1	0	0	1	0	0	0
0	1	0	1	0	0	0	0
0	1	0	1	1	0	1	0
0	1	1	0	0	0	0	0
0	1	1	0	1	0	0	0
0	1	1	1	0	0	0	0
0	1	1	1	1	0	1	0
1	0	0	0	0	0	0	0
1	0	0	0	1	0	0	0
1	0	0	1	0	0	0	0
1	0	0	1	1	0	1	0
1	0	1	0	0	0	0	0
1	0	1	0	1	0	0	0
1	0	1	1	0	0	0	0
1	0	1	1	1	0	1	0
1	1	0	0	0	0	0	0
1	1	0	0	1	0	0	0
1	1	0	1	0	0	0	0
1	1	0	1	1	0	1	0
1	1	1	0	0	1	0	0
1	1	1	0	1	1	0	0
1	1	1	1	0	1	0	0
1	1	1	1	1	1	1	1

2. Dada a expressão booleana apresente o circuito e a tabela verdade]

S = (AC) + (B+D) + (EF)

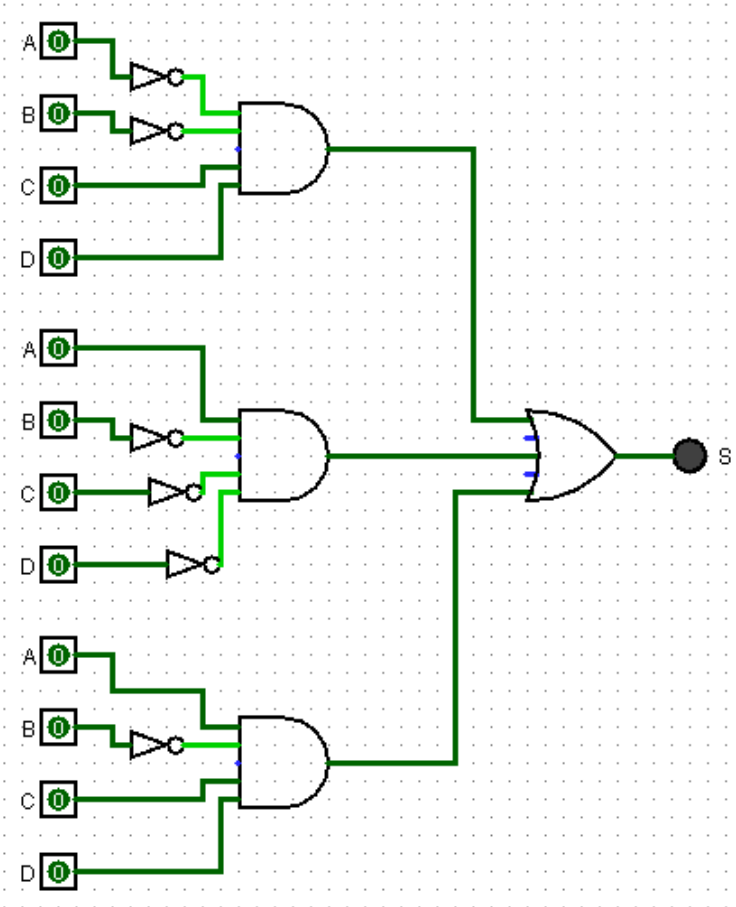


A	B	C	D	E	F	S1	S2	S3	S
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0
0	0	0	0	1	0	0	0	0	0
0	0	0	0	1	1	0	0	1	1
0	0	0	1	0	0	0	1	0	1
0	0	0	1	0	1	0	1	0	1
0	0	0	1	1	0	0	1	0	1
0	0	0	1	1	1	0	1	1	1
0	0	1	0	0	0	0	0	0	0
0	0	1	0	0	1	0	0	0	0
0	0	1	0	1	0	0	0	0	0
0	0	1	0	1	1	0	0	1	1
0	0	1	1	0	0	0	1	0	1
0	0	1	1	0	1	0	1	0	1
0	0	1	1	1	0	0	1	0	1
0	0	1	1	1	1	0	1	1	1
0	1	0	0	0	0	0	1	0	1
0	1	0	0	0	1	0	1	0	1
0	1	0	0	1	0	0	1	0	1
0	1	0	0	1	1	0	1	1	1
0	1	0	1	0	0	0	1	0	1
0	1	0	1	0	1	0	1	0	1
0	1	0	1	1	0	0	1	0	1
0	1	0	1	1	1	0	1	1	1
0	1	1	0	0	0	0	1	0	1
0	1	1	0	0	1	0	1	0	1
0	1	1	0	1	0	0	1	0	1
0	1	1	0	1	1	0	1	1	1
0	1	1	1	0	0	0	1	0	1
0	1	1	1	0	1	0	1	0	1
0	1	1	1	1	0	0	1	0	1
0	1	1	1	1	1	0	1	1	1
1	0	0	0	0	0	0	0	0	0
1	0	0	0	0	1	0	0	0	0
1	0	0	0	1	0	0	0	0	0
1	0	0	0	1	1	0	0	1	1
1	0	0	1	0	0	0	1	0	1
1	0	0	1	0	1	0	1	0	1
1	0	0	1	1	0	0	1	0	1
1	0	0	1	1	1	0	1	1	1
1	0	1	0	0	0	1	0	0	1
1	0	1	0	0	1	1	0	0	1
1	0	1	0	1	0	1	0	0	1
1	0	1	0	0	1	1	0	0	1
1	0	1	0	1	0	1	0	0	1
1	0	1	0	1	1	1	0	1	1
1	0	1	1	0	0	1	1	0	1
1	0	1	1	0	1	1	1	0	1
1	0	1	1	1	0	1	1	0	1
1	0	1	1	1	1	1	1	1	1
1	1	0	0	0	0	0	1	0	1
1	1	0	0	0	1	0	1	0	1
1	1	0	0	1	0	0	1	0	1
1	1	0	0	1	1	0	1	1	1
1	1	0	1	0	0	0	1	0	1
1	1	0	1	0	1	0	1	0	1
1	1	0	1	1	0	0	1	0	1
1	1	0	1	1	1	0	1	1	1
1	1	1	0	0	0	1	1	0	1
1	1	1	0	0	1	1	1	0	1
1	1	1	0	1	0	1	1	0	1
1	1	1	0	1	1	1	1	1	1
1	1	1	1	0	0	1	1	0	1
1	1	1	1	0	1	1	1	0	1
1	1	1	1	1	0	1	1	0	1
1	1	1	1	1	1	1	1	1	1

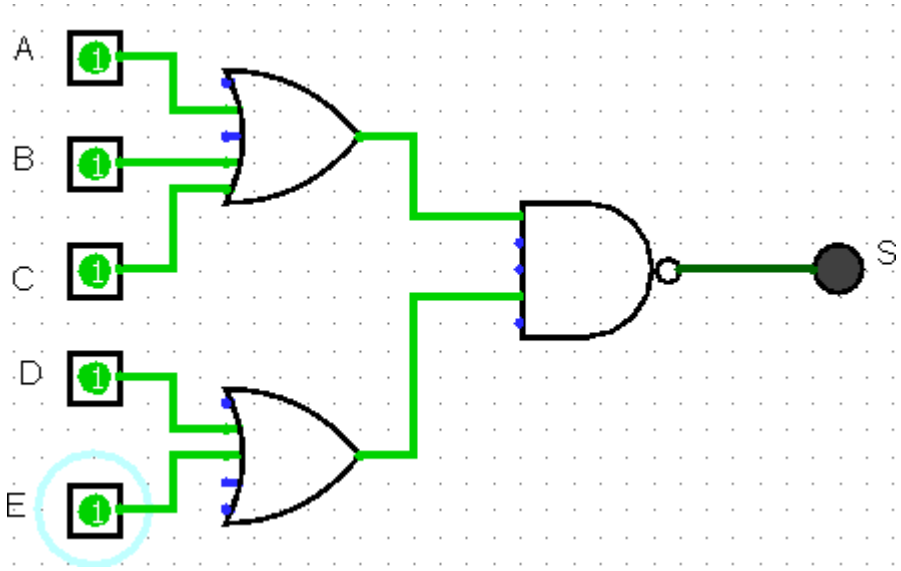
3. Dada a tabela verdade a seguir, desenhe o seu circuito lógico e a expressão booleana

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

S = (!A!BCD) + (A!B!C!D) + (A!BCD)



1. Dado o circuito abaixo faça a tabela verdade e a expressão booleana



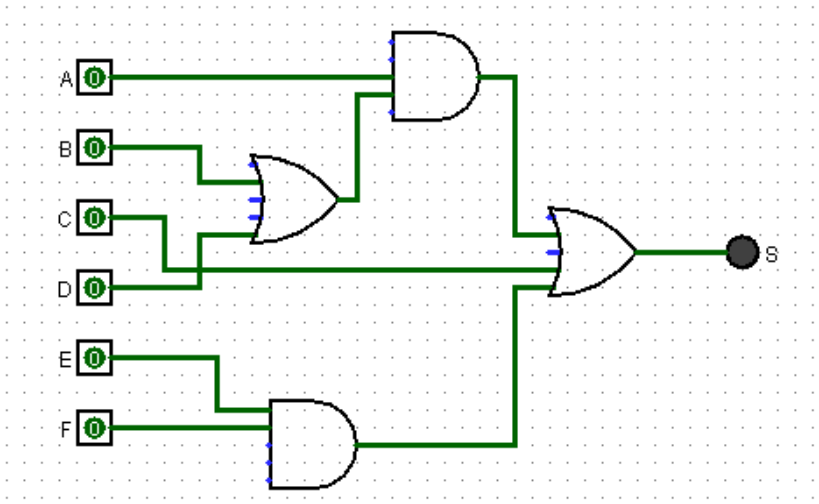
S = (A + B + C) . (D + E)

A	B	C	D	E	S1	S2	S
0	0	0	0	0	0	0	0
0	0	0	0	1	0	1	0
0	0	0	1	0	0	1	0
0	0	0	1	1	0	1	0
0	0	1	0	0	1	0	0
0	0	1	0	1	1	1	1
0	0	1	1	0	1	1	1
0	0	1	1	1	1	1	1
0	1	0	0	0	1	0	0
0	1	0	0	1	1	1	1
0	1	0	1	0	1	1	1
0	1	0	1	1	1	1	1
0	1	1	0	0	1	0	0
0	1	1	0	1	1	1	1
0	1	1	1	0	1	1	1
0	1	1	1	1	1	1	1
1	0	0	0	0	1	0	0
1	0	0	0	1	1	1	1
1	0	0	1	0	1	1	1
1	0	0	1	1	1	1	1
1	0	1	0	0	1	0	0
1	0	1	0	1	1	1	1
1	0	1	1	0	1	1	1
1	0	1	1	1	1	1	1
1	1	0	0	0	1	0	0
1	1	0	0	1	1	1	1
1	1	0	1	0	1	1	1
1	1	0	1	1	1	1	1
1	1	1	0	0	1	0	0
1	1	1	0	1	1	1	1
1	1	1	1	0	1	1	1
1	1	1	1	1	1	1	1

2. **Dada a expressão booleana apresente o circuito e a tabela verdade**

S = A(B+D) + (EF) + C

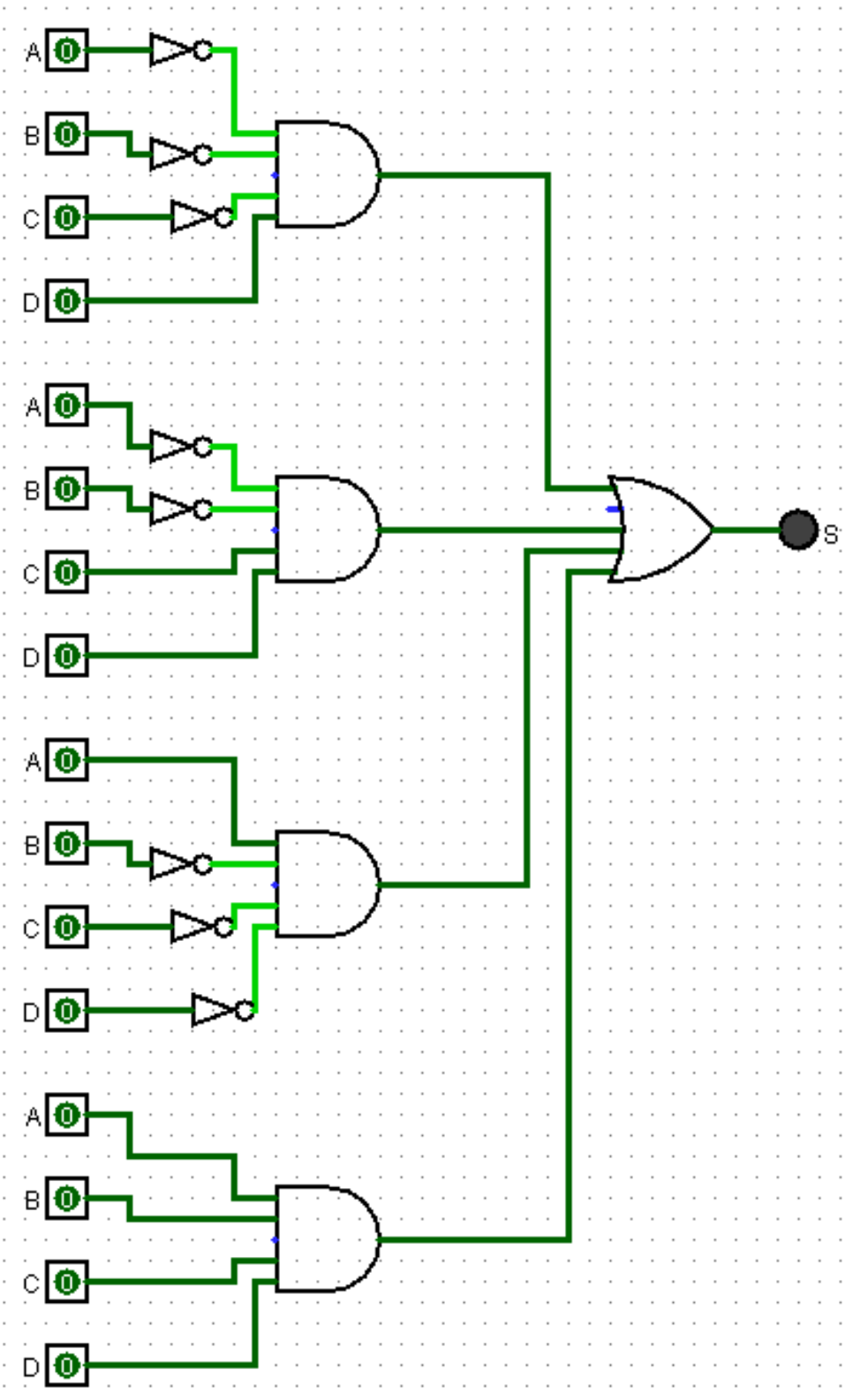
A	B	C	D	E	F	S1	S2	S3	S
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0
0	0	0	0	1	0	0	0	0	0
0	0	0	0	1	1	0	1	0	1
0	0	0	1	0	0	0	0	0	0
0	0	0	1	0	1	0	0	0	0
0	0	0	1	1	0	0	0	0	0
0	0	0	1	1	1	0	1	0	1
0	0	1	0	0	0	0	0	1	1
0	0	1	0	0	1	0	0	1	1
0	0	1	0	1	0	0	0	1	1
0	0	1	0	1	1	0	1	1	1
0	0	1	1	0	0	0	0	1	1
0	0	1	1	0	1	0	0	1	1
0	0	1	1	1	0	0	0	1	1
0	0	1	1	1	1	0	1	1	1
0	1	0	0	0	0	0	0	0	0
0	1	0	0	0	1	0	0	0	0
0	1	0	0	1	0	0	0	0	0
0	1	0	0	1	1	0	1	0	1
0	1	0	1	0	0	0	0	0	0
0	1	0	1	0	1	0	0	0	0
0	1	0	1	1	0	0	0	0	0
0	1	0	1	1	1	0	1	0	1
0	1	1	0	0	0	0	0	1	1
0	1	1	0	0	1	0	0	1	1
0	1	1	0	1	0	0	0	1	1
0	1	1	0	1	1	0	1	1	1
0	1	1	1	0	0	0	0	1	1
0	1	1	1	0	1	0	0	1	1
0	1	1	1	1	0	0	0	1	1
0	1	1	1	1	1	0	1	1	1
1	0	0	0	0	0	0	0	0	0
1	0	0	0	0	1	0	0	0	0
1	0	0	0	1	0	0	0	0	0
1	0	0	0	1	1	0	1	0	1
1	0	0	1	0	0	1	0	0	1
1	0	0	1	0	1	1	0	0	1
1	0	0	1	1	0	1	0	0	1
1	0	0	1	1	1	1	1	0	1
1	0	1	0	0	0	0	0	1	1
1	0	1	0	0	1	0	0	1	1
1	0	1	0	1	0	0	0	1	1
1	0	1	0	1	1	0	1	1	1
1	0	1	1	0	0	1	0	1	1
1	0	1	1	0	1	1	0	1	1
1	0	1	1	1	0	1	0	1	1
1	0	1	1	1	1	1	1	1	1
1	1	0	0	0	0	1	0	0	1
1	1	0	0	0	1	1	0	0	1
1	1	0	0	1	0	1	0	0	1
1	1	0	0	1	1	1	1	0	1
1	1	0	1	0	0	1	0	0	1
1	1	0	1	0	1	1	0	0	1
1	1	0	1	1	0	1	0	0	1
1	1	0	1	1	1	1	1	0	1
1	1	1	0	0	0	1	0	1	1
1	1	1	0	0	1	1	0	1	1
1	1	1	0	1	0	1	0	1	1
1	1	1	0	1	1	1	1	1	1
1	1	1	1	0	0	1	0	1	1
1	1	1	1	0	1	1	0	1	1
1	1	1	1	1	0	1	0	1	1
1	1	1	1	1	1	1	1	1	1



3. Dada a tabela verdade a seguir, desenhe o seu circuito lógico e a expressão booleana

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

S = (!A!B!CD) + (A!B!CD) + (A!B!C!D) + (ABCD)


A
B
C
D
A
B
C
D
A
B
C
D
A
B
C
D
S