

# Exercício Contador Descrescente 12 a 0

N	Q3	Q2	Q1	Q0	D3	D2	D1
15	1	1	1	1	0	0	0
14	1	1	1	0	0	0	0
13	1	1	0	1	0	0	0
12	1	1	0	0	1	0	1
11	1	0	1	1	1	0	1
10	1	0	1	0	1	0	0
9	1	0	0	1	1	0	0
8	1	0	0	0	0	1	1
7	0	1	1	1	0	1	1
6	0	1	1	0	0	1	0
5	0	1	0	1	0	1	0
4	0	1	0	0	0	0	1
3	0	0	1	1	0	0	1
2	0	0	1	0	0	0	0
1	0	0	0	1	0	0	0
0	0	0	0	0	1	1	0

$$D3 \rightarrow D3 = Q3Q2'Q0 + Q3Q2Q1'Q0' + Q3'Q2'Q1'Q0' + Q3Q2'Q1$$

Q3Q2\Q1Q0	0 0	0 1	1 1	1 0
0 0	1			
0 1				
1 1	1			
1 0		1	1	1

$$D2 \rightarrow D2 = Q2'Q1'Q0' + Q3'Q2Q0 + Q3'Q2Q1$$

Q3Q2\Q1Q0	0 0	0 1	1 1	1 0
0 0	1			
0 1		1	1	1
1 1				
1 0	1			

$$D1 \rightarrow D1 = Q2Q1'Q0' + Q3Q1'Q0' + Q2'Q1Q0 + Q3'Q1Q0$$

Q3Q2\Q1Q0	0 0	0 1	1 1	1 0
0 0			1	
0 1	1		1	
1 1	1			
1 0	1		1	

$$D0 \rightarrow D0 = Q3Q1'Q0' + Q2Q1'Q0' + Q3'Q1Q0' + Q2'Q1Q0'$$

Q3Q2\Q1Q0	0 0	0 1	1 1	1 0
0 0				1
0 1	1			1

11	1			
10	1			1