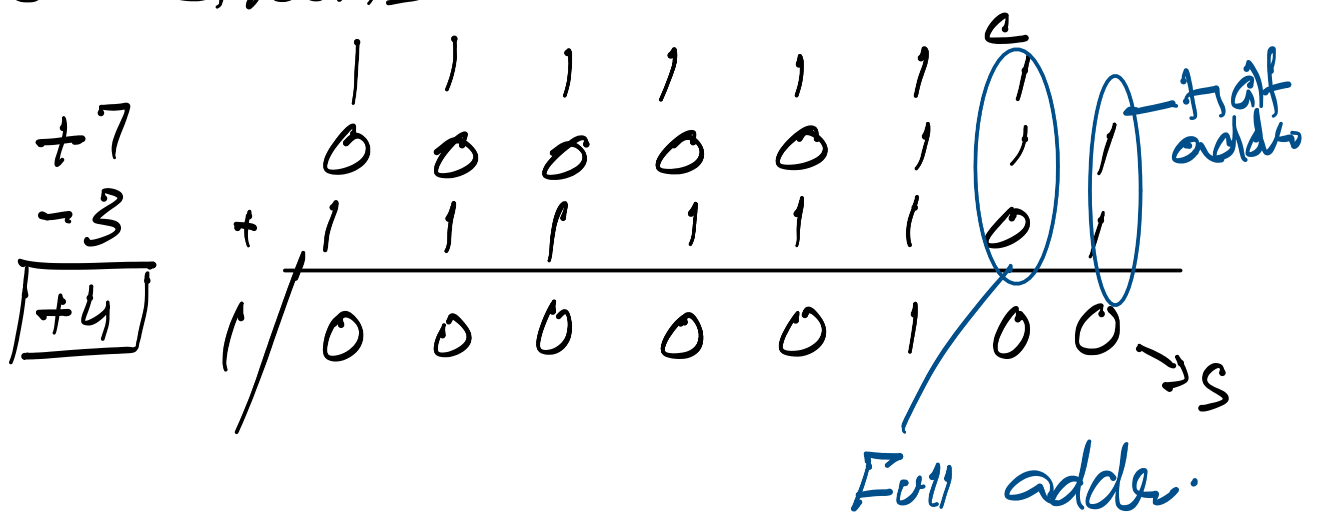
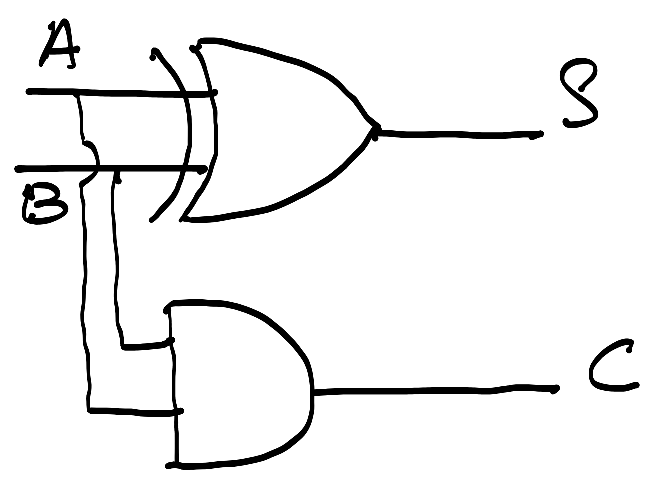
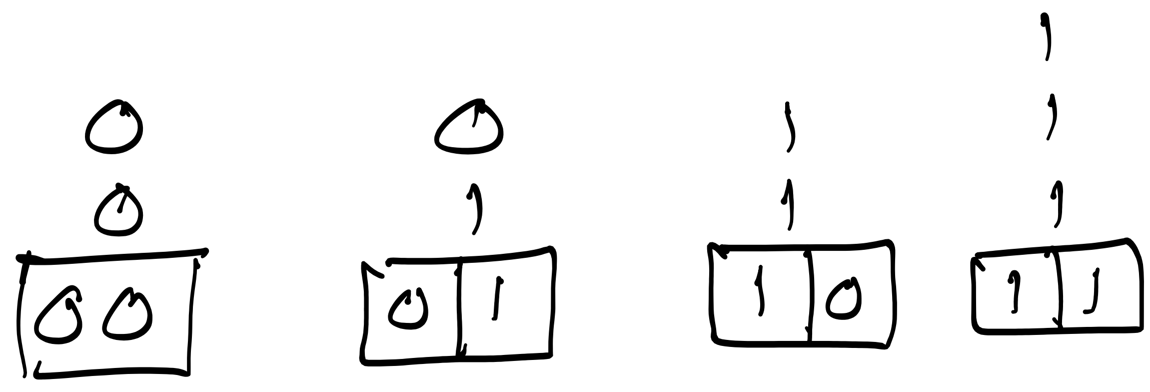
These are circuits inside ALU and perform additions.

- Those circuits that add two bits are "half adders".
- Those circuits that add three bits are "full adders".



Half Adders:

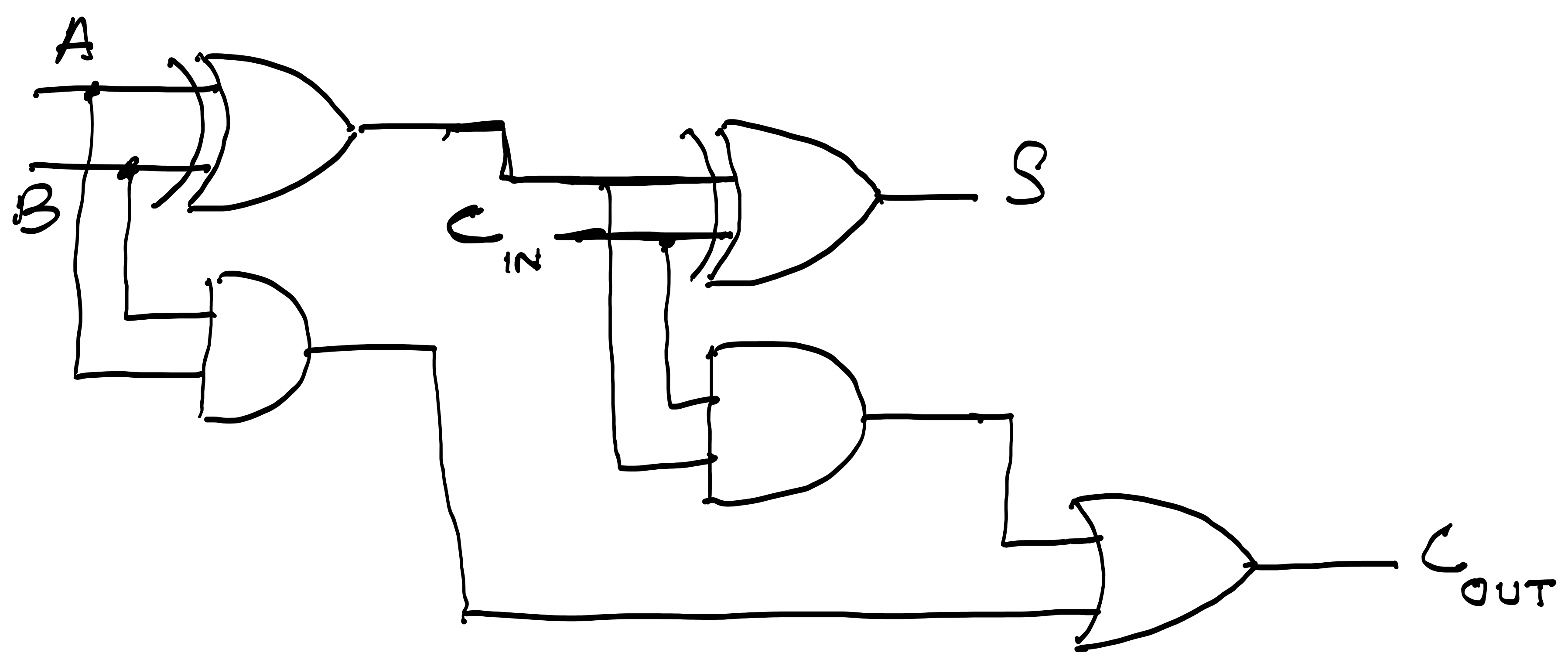




$2^2 = 4$ possibilities < 0, 3

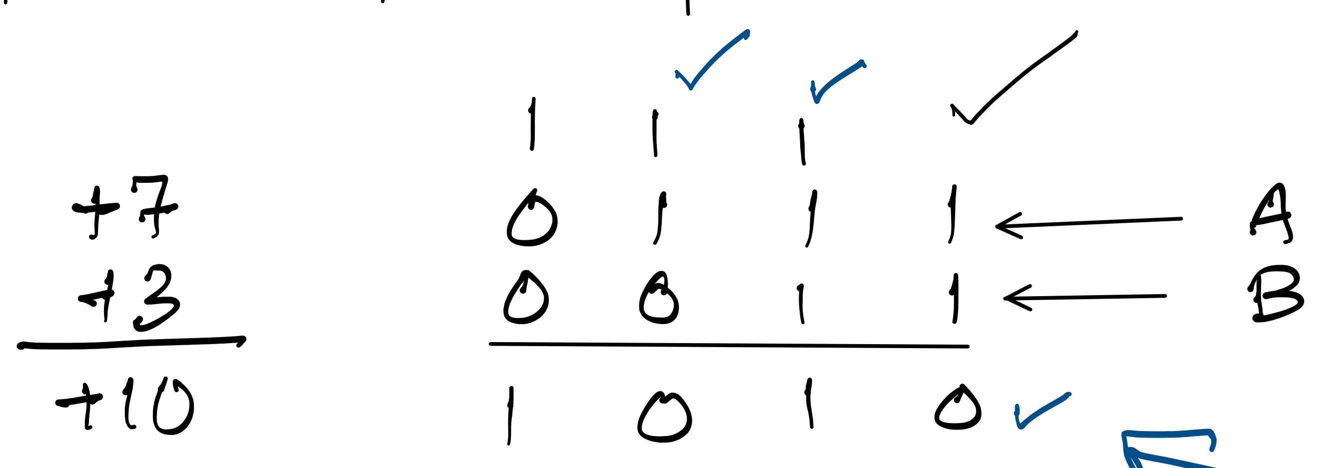
A	B	C	S
0	0	0	0
0	1	0	1
1	0	0	1
1	1	1	0

Full Adder:



$2^3 = 8$ < 0, 7

A	B	C_{IN}	C_{OUT}	S
0	0	0	0	0
0	0	1	0	1
0	1	0	0	1
0	1	1	1	0
1	0	0	0	1
1	0	1	1	0
1	1	0	1	0
1	1	1	1	1



Full Adder 4 bits working