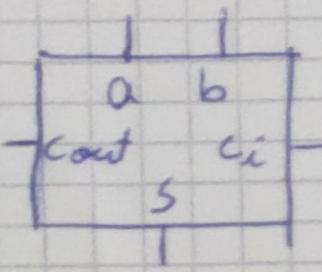


# Parte 1



c <sub>i</sub>	a	b	s	c <sub>out</sub>
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

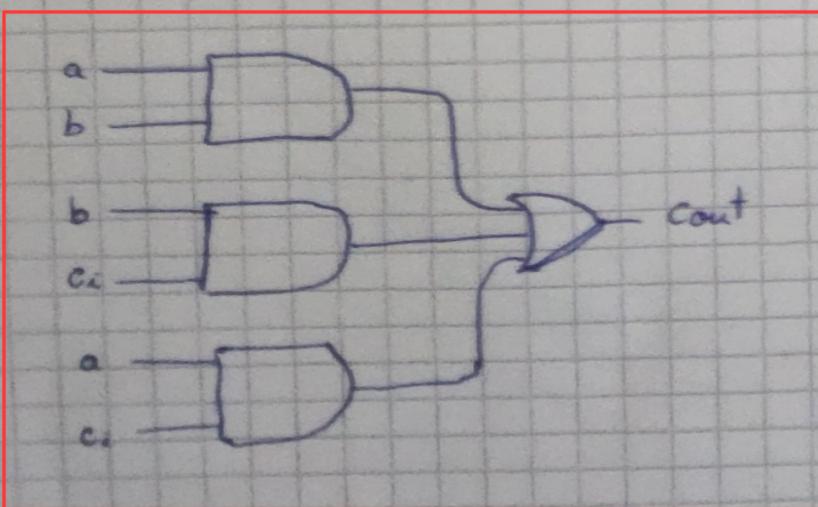
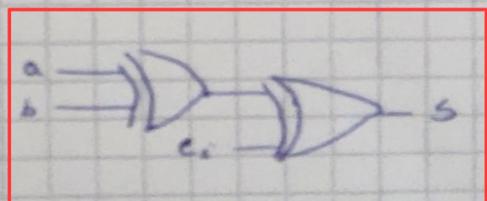
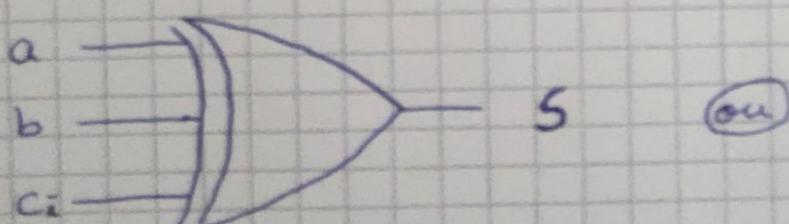
Ansatz

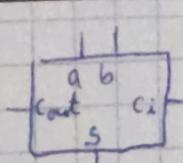
S	c <sub>i</sub>	a	b	00	01	11	10
0	0	0	1	0	1	0	1
1	1	1	0	1	0	1	0

Cout	c <sub>i</sub>	a	b	00	01	11	10
0	0	0	0	0	0	1	0
1	0	1	0	1	1	1	1

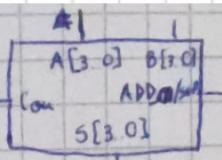
$$\begin{aligned}
 S &= \bar{a}\bar{b}c_i + \bar{a}b\bar{c}_i + a\bar{b}c_i + ab\bar{c}_i \\
 &= \bar{a}(\bar{b}c_i + b\bar{c}_i) + a(b\bar{c}_i + \bar{b}\bar{a}) \\
 &= \bar{a}(b \oplus c_i) + a(\bar{b} \oplus \bar{a}) \\
 &= a \oplus b \oplus c_i
 \end{aligned}$$

$$c_{out} = a \cdot b + b \cdot \bar{a} + \bar{a} \cdot \bar{b}$$

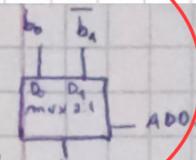




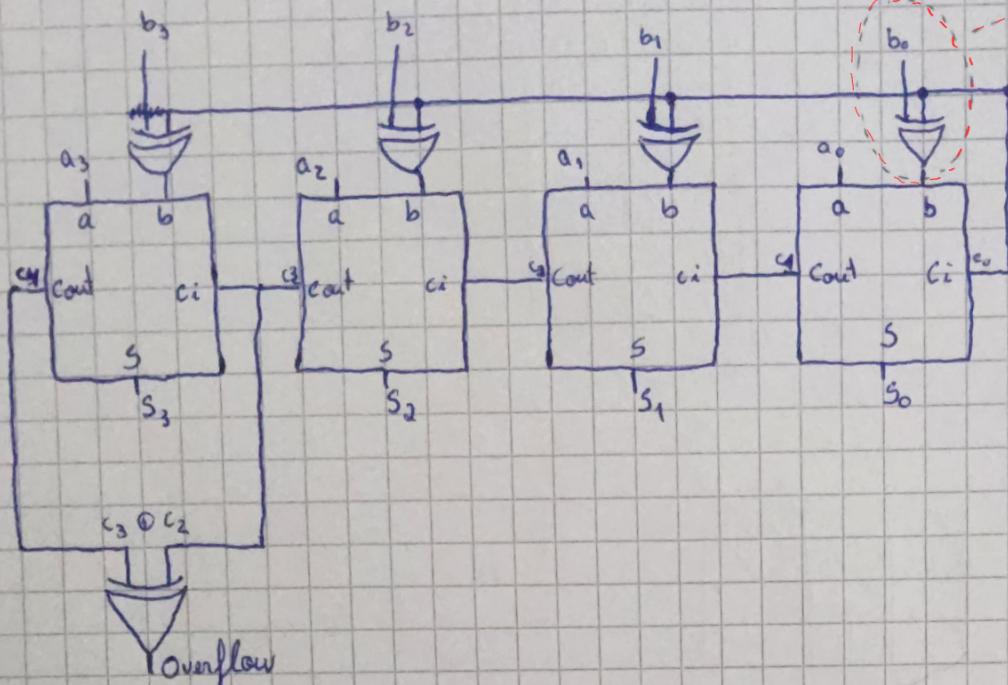
Queremos ...



$$\begin{array}{r} c_4 \ c_3 \ c_2 \ c_1 \ c_0 \\ a_3 \ a_2 \ a_1 \ a_0 \\ + b_3 \ b_2 \ b_1 \ b_0 \\ \hline \end{array}$$



Puedenmos tener usado mux 2:1



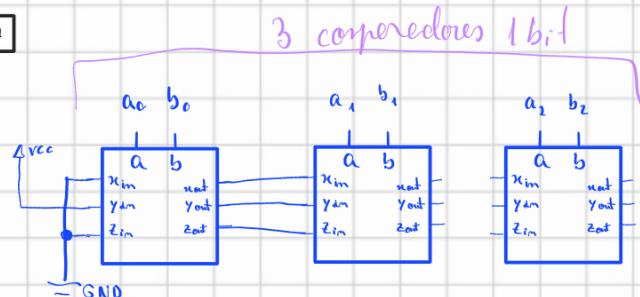
## Parte 2

$$y_{out} = (a_i \oplus b_i) \quad y_{im}$$

$$x_{out} = a_i b_i + (a \oplus b) \quad x_{im}$$

$$z_{out} = \bar{a}_i b_i + (\bar{a} \oplus b) \quad z_{im}$$

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Comparador especial para signed

x_im	y_im	z_im	a	b	x_out	y_out	z_out
0	0	1	0	0	0	0	1
0	0	1	0	1	1	0	0
0	0	1	1	0	0	0	1
0	0	1	1	1	0	0	1
1	0	1	0	0	0	1	0
0	1	0	0	1	1	0	0
0	1	0	1	0	0	0	1
0	1	0	1	1	0	1	0
1	0	0	0	0	1	0	0
1	0	0	0	1	1	0	0
1	0	0	1	0	0	0	1
1	0	0	1	1	1	1	0

E igual! →

Esta sería el comparador del último bit

$$x_{out} = z_{im} \bar{a} \bar{b} + y_{im} \bar{a} b + x_{im} (\bar{a} + b)$$

$$y_{out} = (a_i \oplus b_i) \quad y_{im}$$

$$z_{out} = z_{im} (a_i + b_i) + y_{im} a_i \bar{b} + x_{im} a \bar{b}$$

8

No signed

$$y_{out} = (a_i \oplus b_i) \quad y_{im} \quad \checkmark$$

$$x_{out} = a_i \bar{b}_i \bar{z}_{im} + x_{im}$$

$$z_{out} = \bar{a}_i b_i \bar{x}_{im} + z_{im}$$



