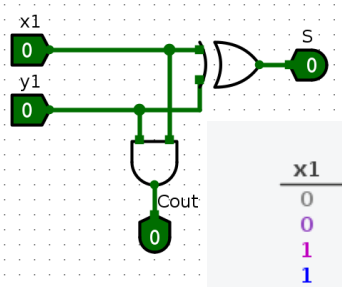
Exercicio Pratico 01

734497 – Lucas Zegrine Duarte

1 – Somador ½ soma logsim.

2 – Tabela Verdade.



x1	y1	S	Cout
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

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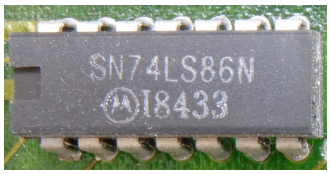
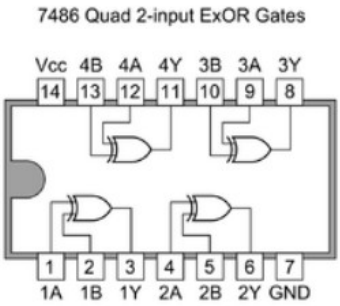
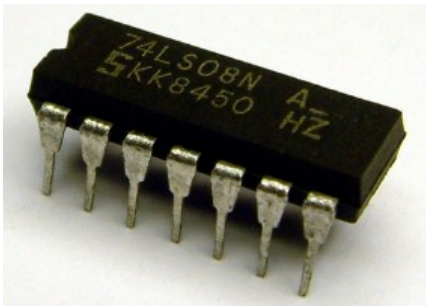
3 – Datasheet – componentes XOR, AND, OR.

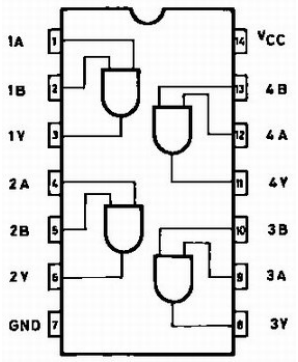
XOR – 74LS86



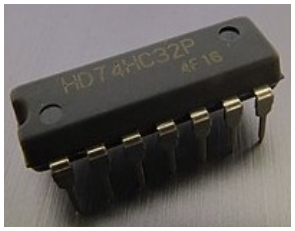


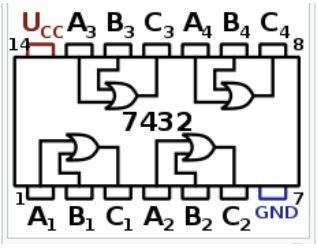
AND – 74LS08





OR – 74HC32





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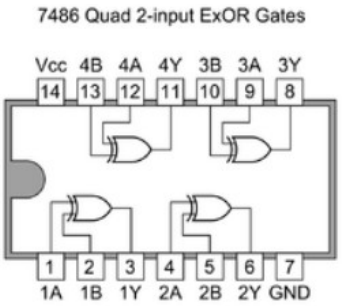
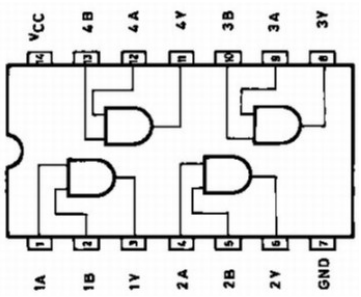
4 – Pinos VCC / GND & Pinos de entrada e saida.

XOR



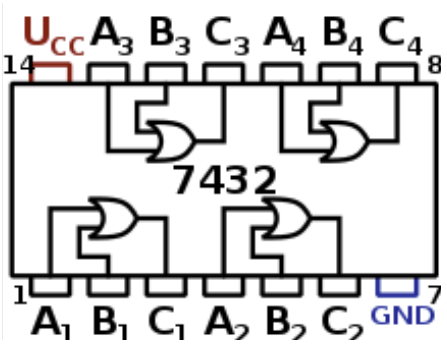
14	– VCC
7	– GND
1;2 / 4;5 / 9;10 / 12;13	– Portas de entrada
3 / 6 / 8 / 11	– Pontas de Saida

AND



14	– VCC
7	– GND
1;2 / 4;5 / 9;10 / 12;13	– Portas de entrada
3 / 6 / 8 / 11	– Portas de Saida

OR



14	– VCC
7	– GND
A1;B1 / A2;B2 / A3;B3 / A4;B4	– Portas de entrada
C1 / C2 / C3 / C4	– Portas de Saida

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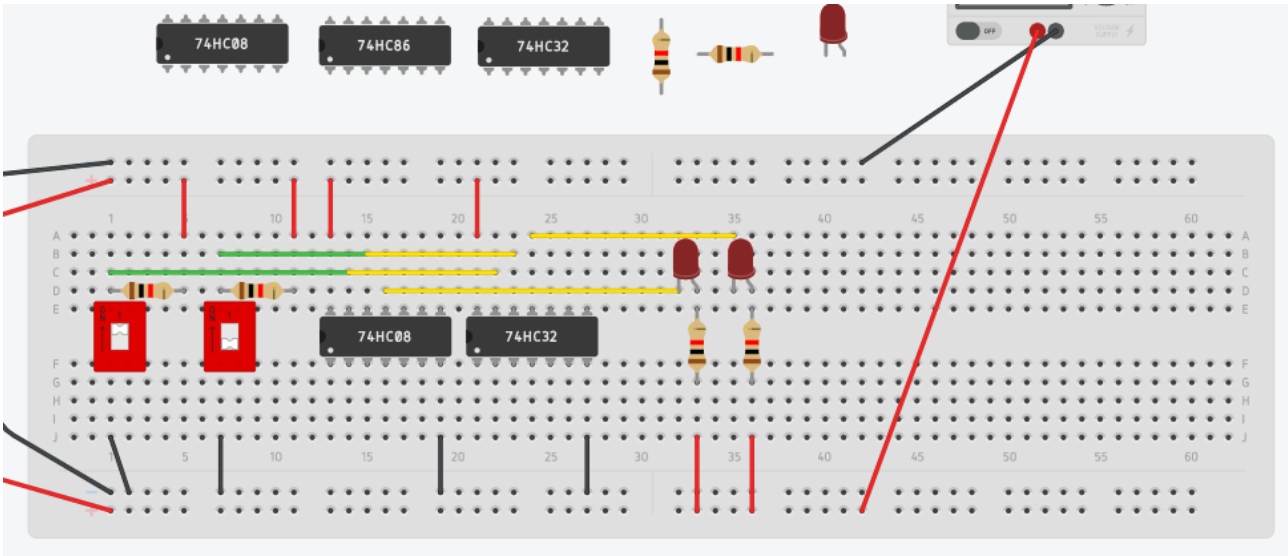
5 – Procure no simulador-97 os mesmos componentes.

Obs. Não consegui utilizar o .exe do sim-97, aparentemente o ubuntu não executa .exe, utilizei o Tinkercad como alternativa.

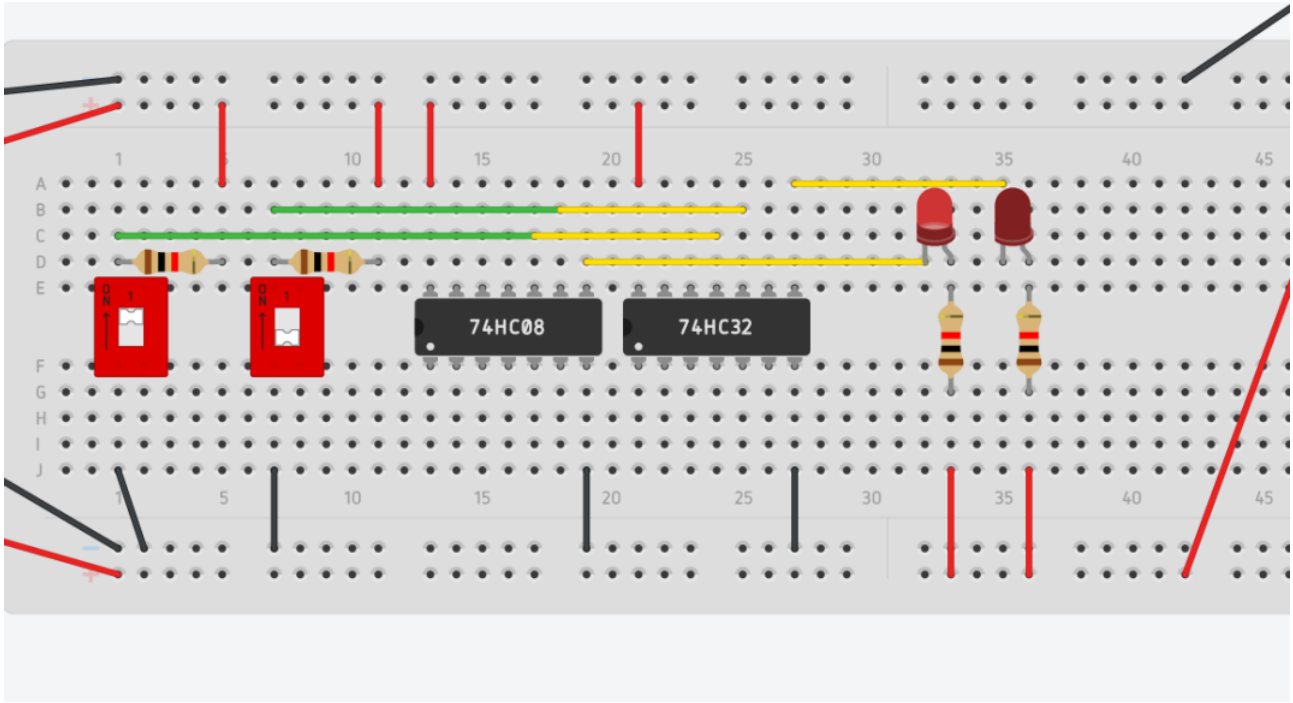


Pergunta 1 :

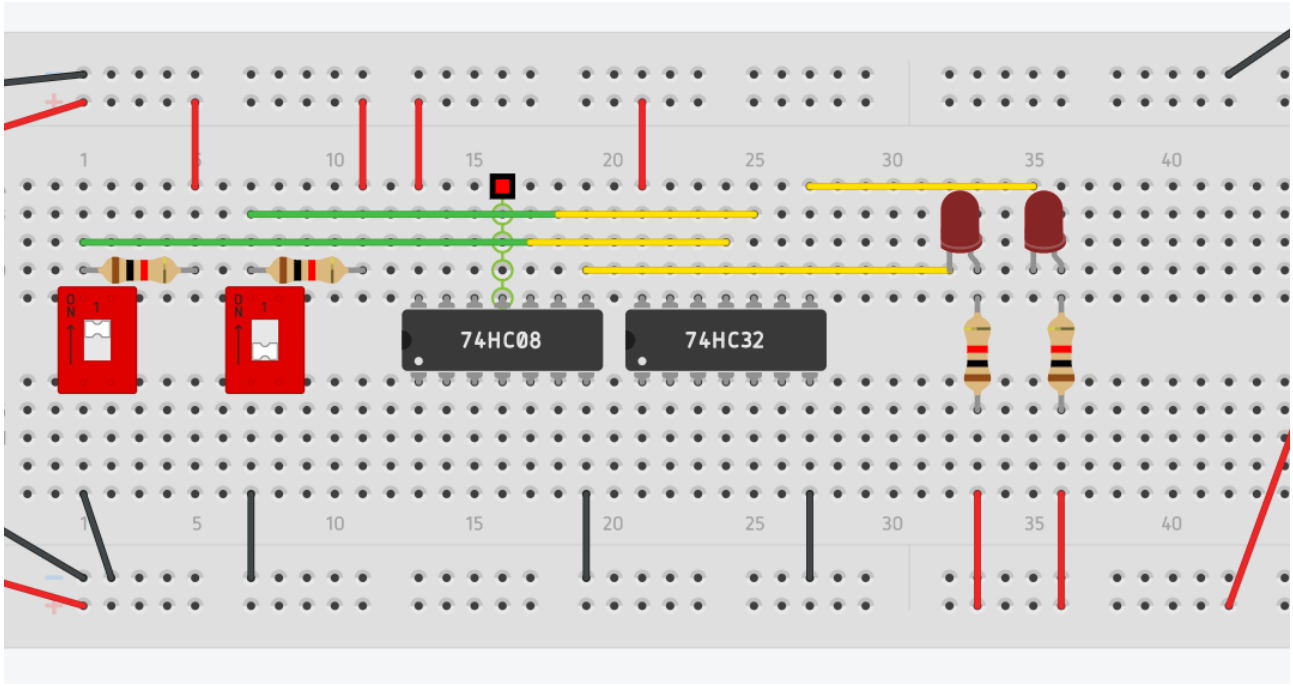
Porta logica não conectada em 0 ou 1. Se não conectado em nenhuma saida logica não haverá output.

Caso seja a entrada que não esteja conectada, não haverá entrada, em ambos os casos o programa/microprocessador não funcionará.

6 – ½ somador no Tinkercad.



7 – ½ somador outra porta, mesmo chip.



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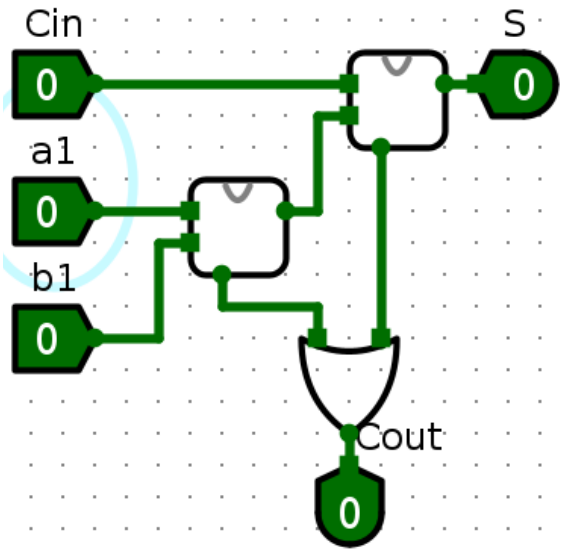
8 – Somador completo de 1 bit.

9 – Tablea verdade.

Cin	a1	b1	S	Cout
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



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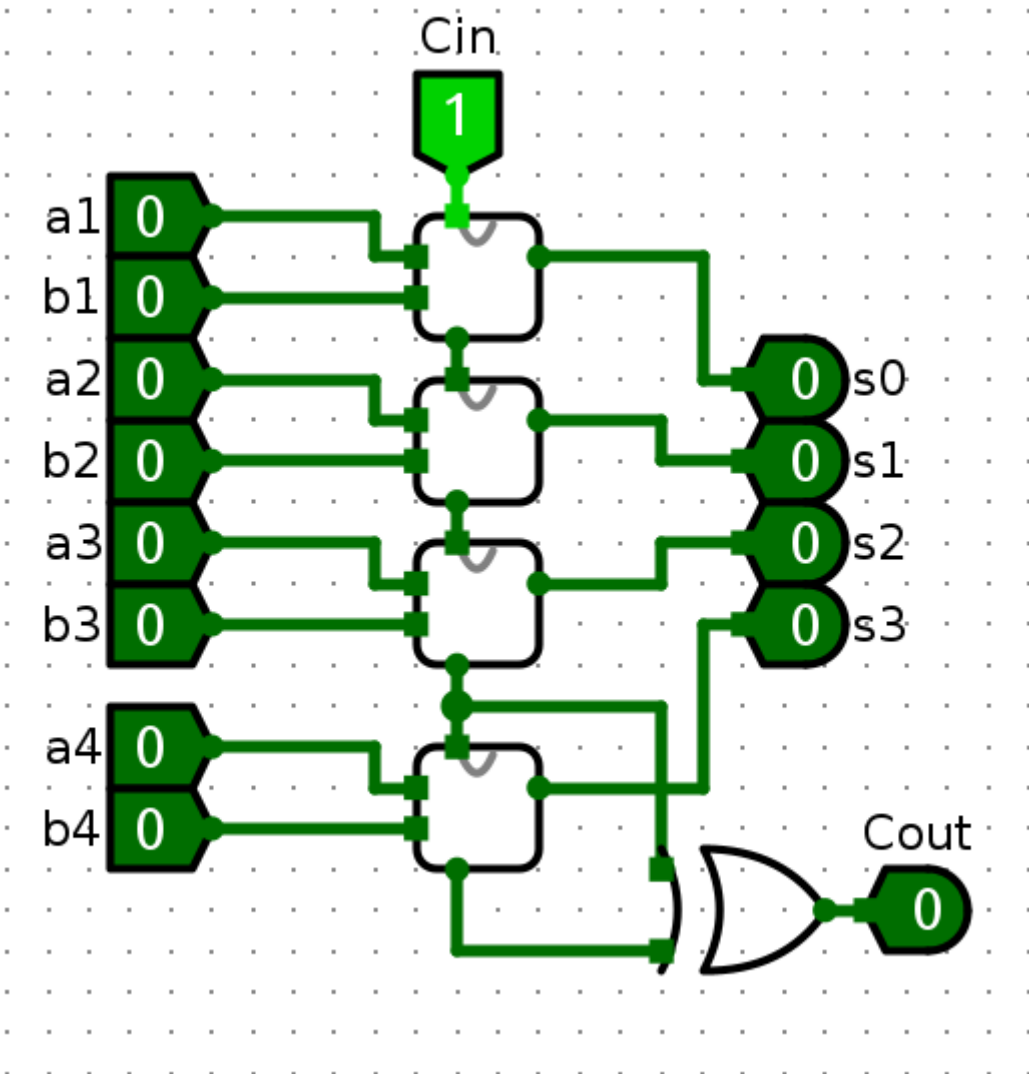
10 – Explicar funcionamento de somador de 4 bits + logsim

Possui cin e cout, reservado aos carrys, recebe 8 bits ao todo das entradas, sendo 4a e 4b (4bit – 2 entradas) e realiza a soma utilizando somadores completos de 1bit, consegue fazer apenas operacao de soma.



Perguntas

2 – Atraso medio 10ns

Soma – 20ns Cout - 30ns

3 – Soma Cout 4bit

Cout – 90ns

4 – Somador 32 bits

4 Ulas de 4 bits

6 – Tornar soma mais veloz

Utilizar CLA → Carry Look Ahead

- melhora a velocidade reduzindo assim o tempo de execucao

Somador completo 4 bits