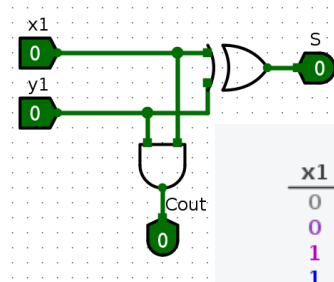


Exercicio Pratico 01

734497 – Lucas Zegrine Duarte

1 – Somador ½ soma logsim.

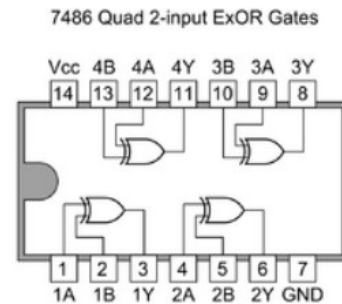
2 – Tabela Verdade.



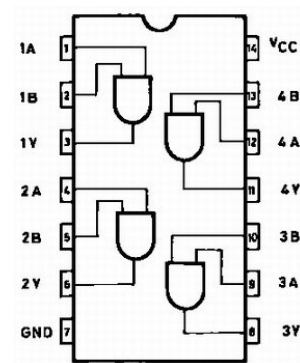
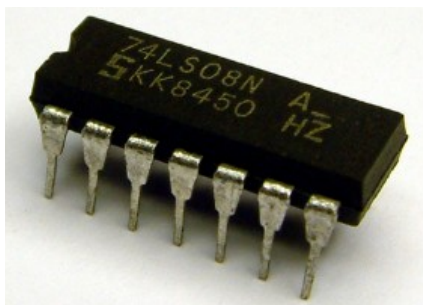
x1	y1	S	Cout
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

3 – Datasheet – componentes XOR, AND, OR.

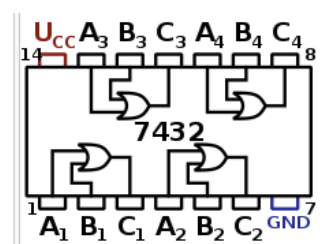
XOR – 74LS86



AND – 74LS08

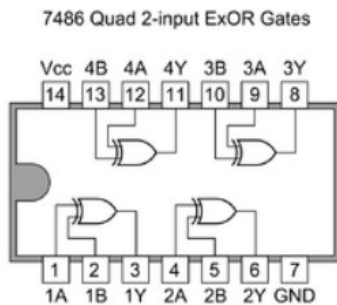


OR – 74HC32



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

XOR



14

– VCC

7

– GND

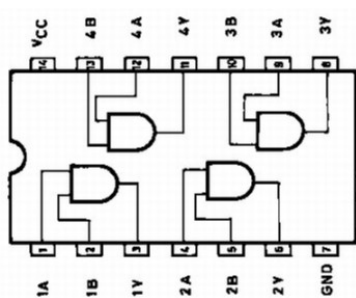
1;2 / 4;5 / 9;10 / 12;13

– Portas de entrada

3 / 6 / 8 / 11

– Pontas de Saida

AND



14

– VCC

7

– GND

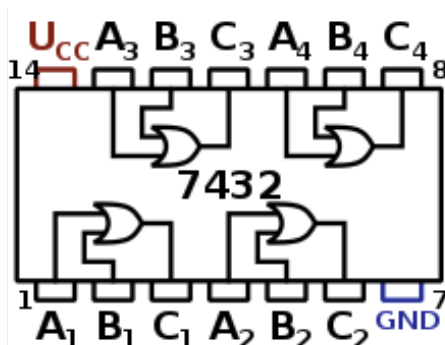
1;2 / 4;5 / 9;10 / 12;13

– Portas de entrada

3 / 6 / 8 / 11

– Portas de Saida

OR



14

– VCC

7

– GND

A₁;B₁ / A₂;B₂ / A₃;B₃ / A₄;B₄

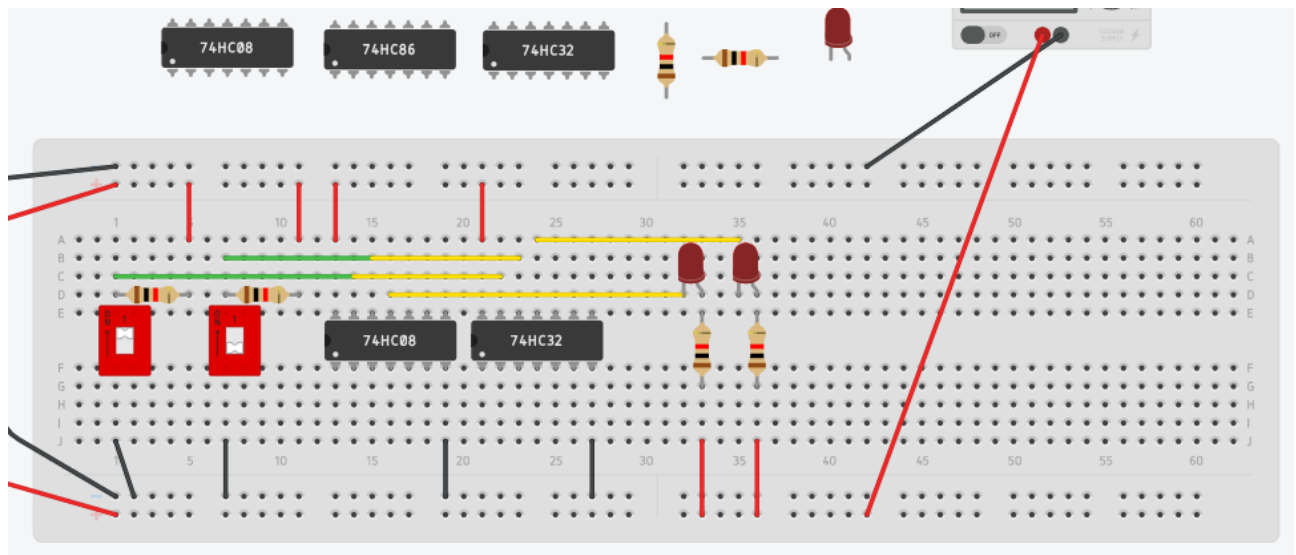
– Portas de entrada

C₁ / C₂ / C₃ / C₄

– Portas de Saida

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.

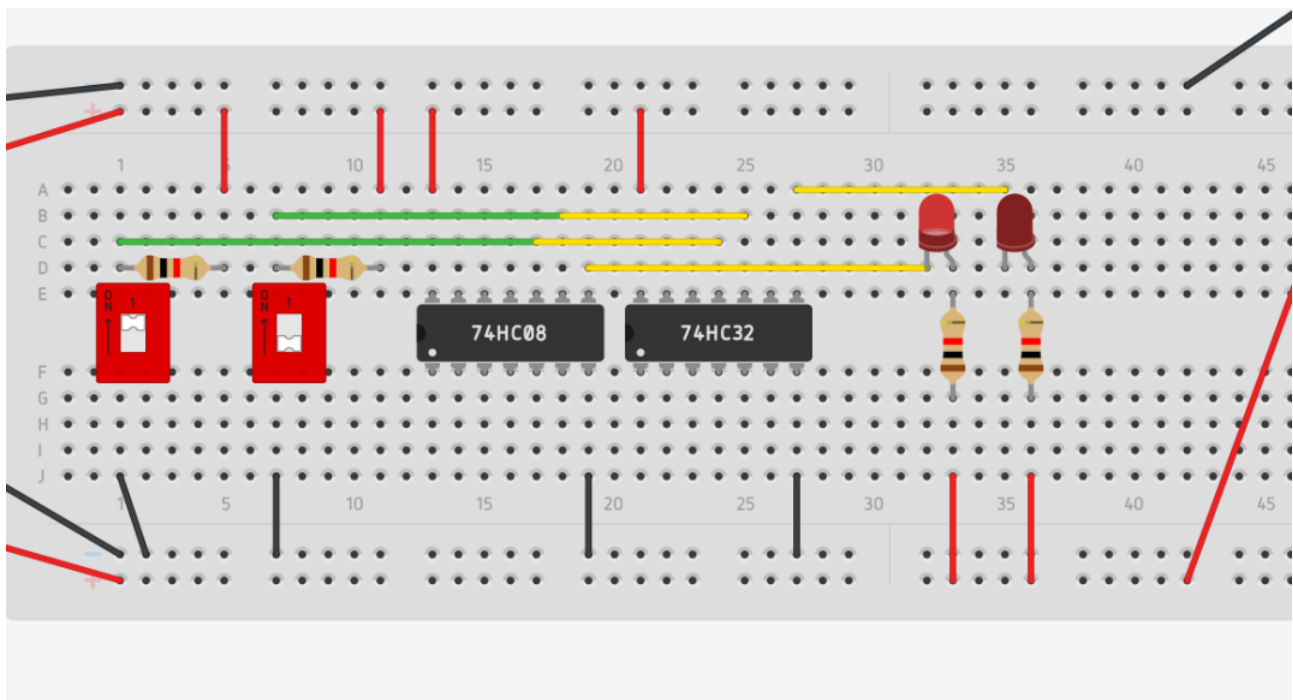


Pergunta 1 :

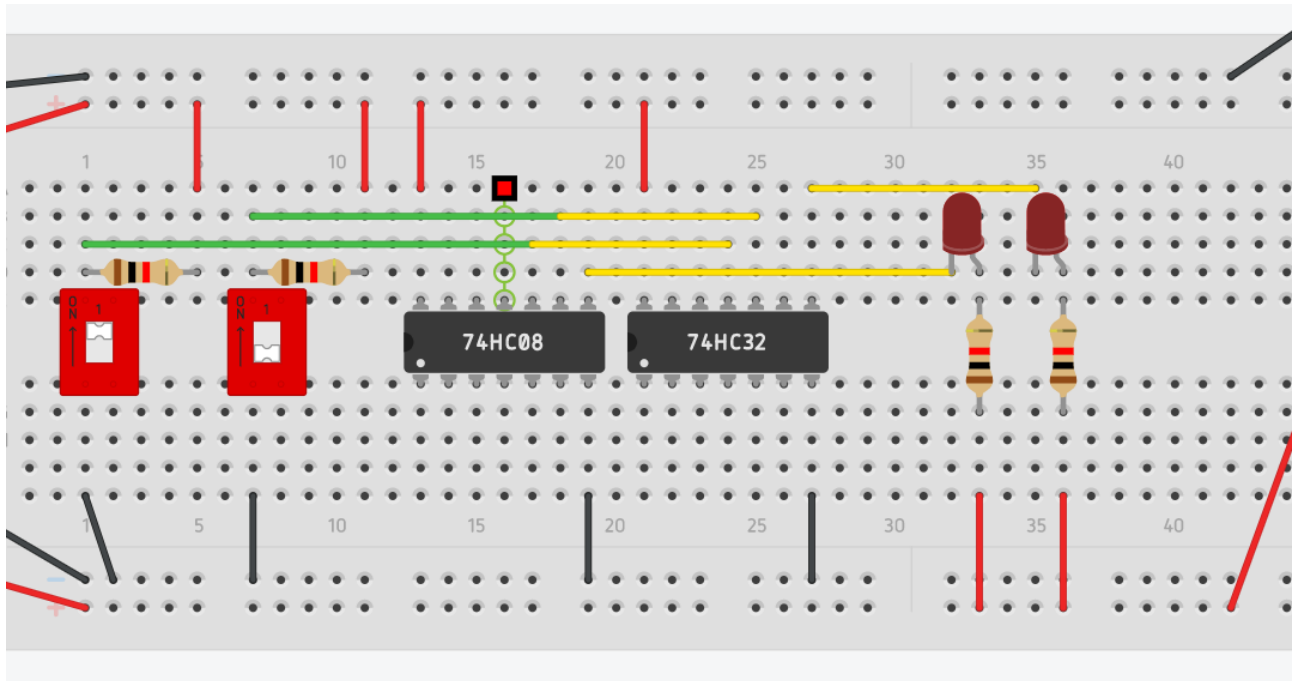
Porta logica não conectada em 0 ou 1. Se não conectado em nenhuma saída logica não haverá output.

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.



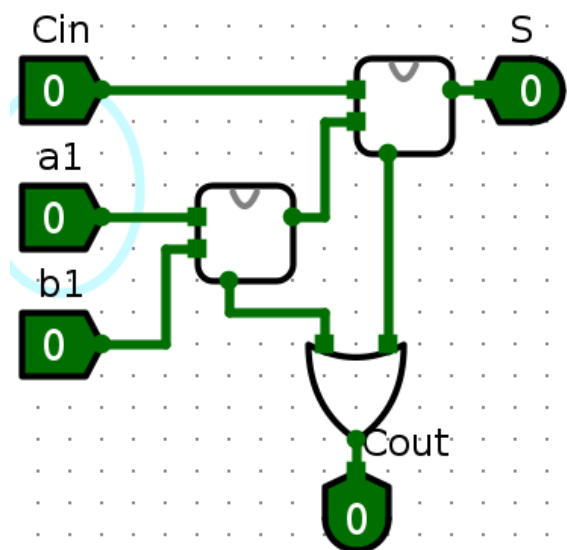
7 – ½ somador outra porta, mesmo chip.



8 – Somador completo de 1 bit.

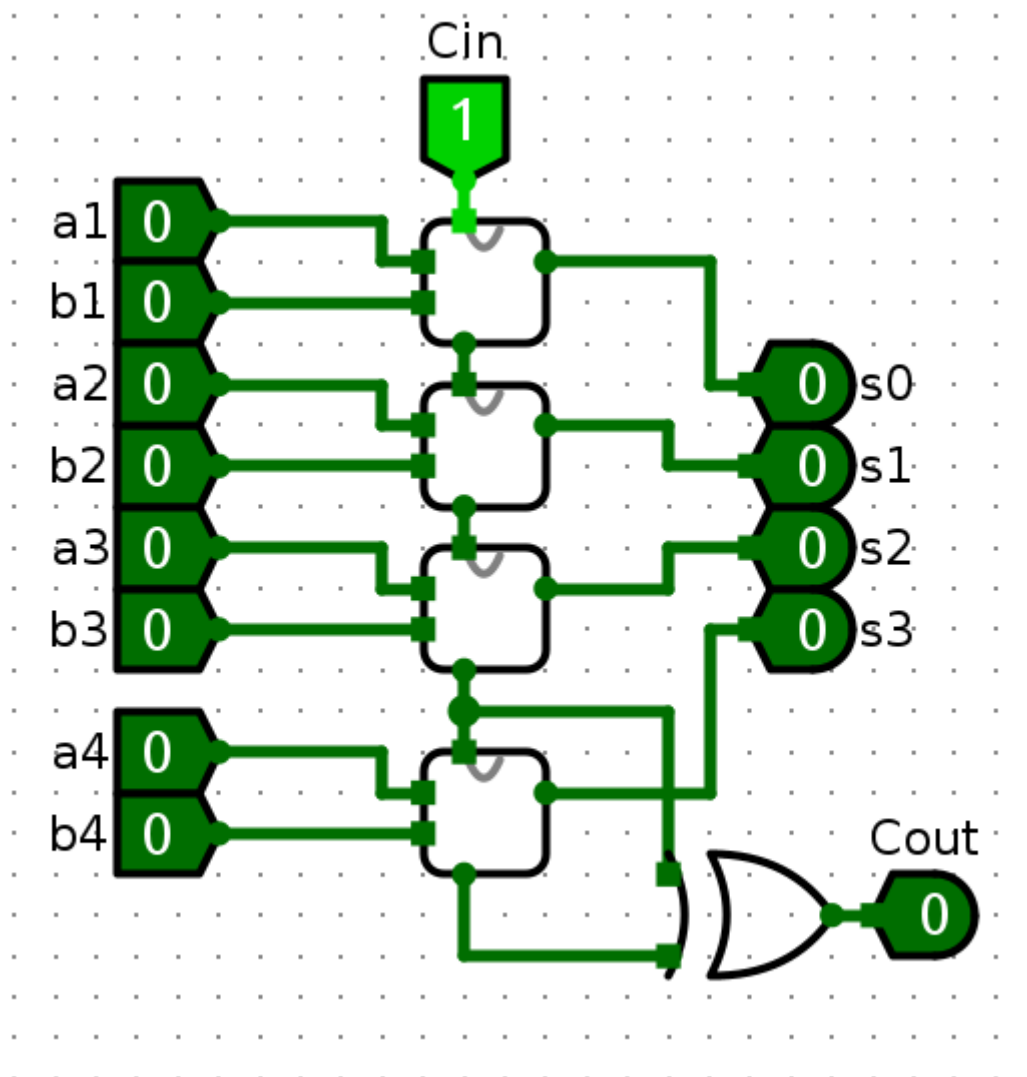
9 – Tablea verdade.

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



10 – Explicar funcionamento de somador de 4 bits + logsim

Possui cin e cout, reservado aos carries, 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

5 – Frequencia operacao 32 bits

Quais tempos ?

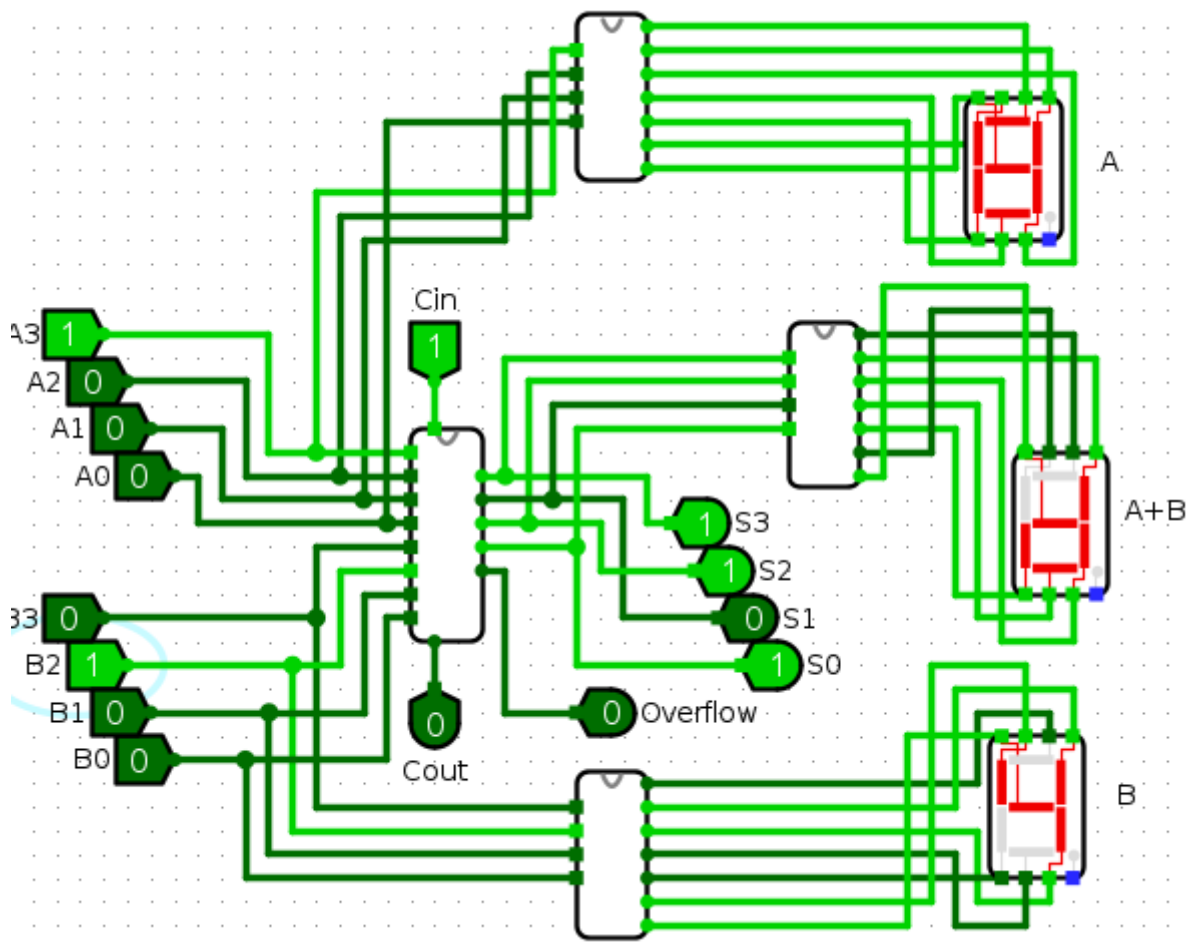
10ns → 1/

6 – Tornar soma mais veloz

Utilizar CLA → Carry Look Ahead

- melhora a velocidade reduzindo assim o tempo de execucao

Somador completo 4 bits (Display Hexa)



Decodificador da calculadora abaixo.

