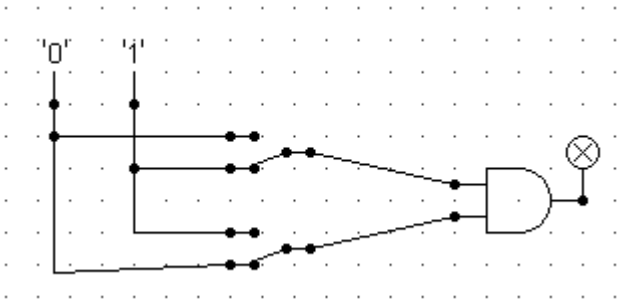
1. Draw the logic diagram of the following gates using logsim and complete the Truth tables.

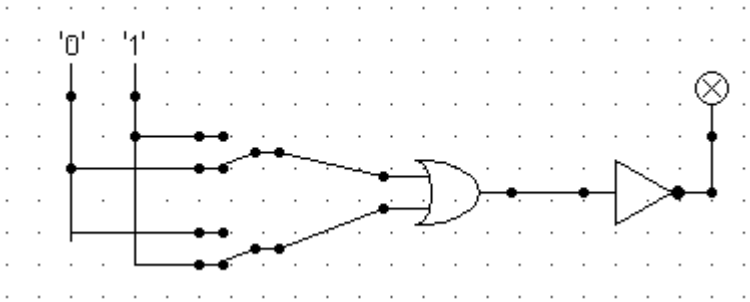
a) AND

A	B	A.B
0	**0**	**0**
0	**1**	**0**
1	**0**	**0**
1	**1**	**1**



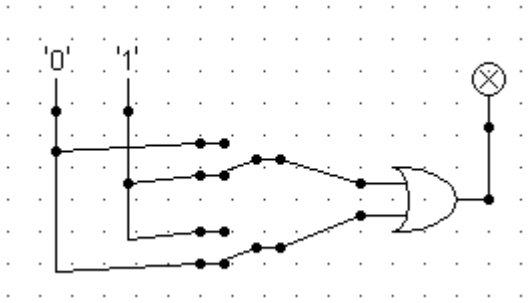
b) NOR (do the same as in Q No a for all of the following)

A	B	(A + B)’
0	0	1
0	1	0
1	0	0
1	1	0



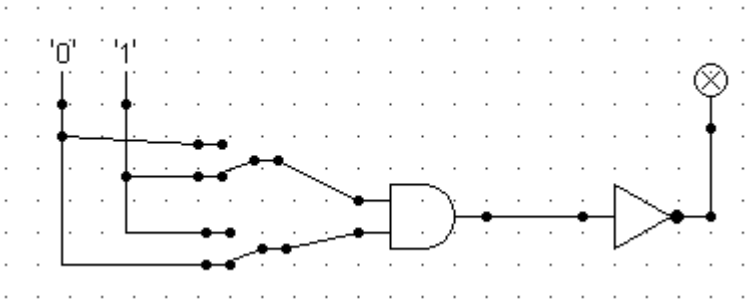
c) OR

A	B	A + B
0	0	0
0	1	1
1	0	1
1	1	1



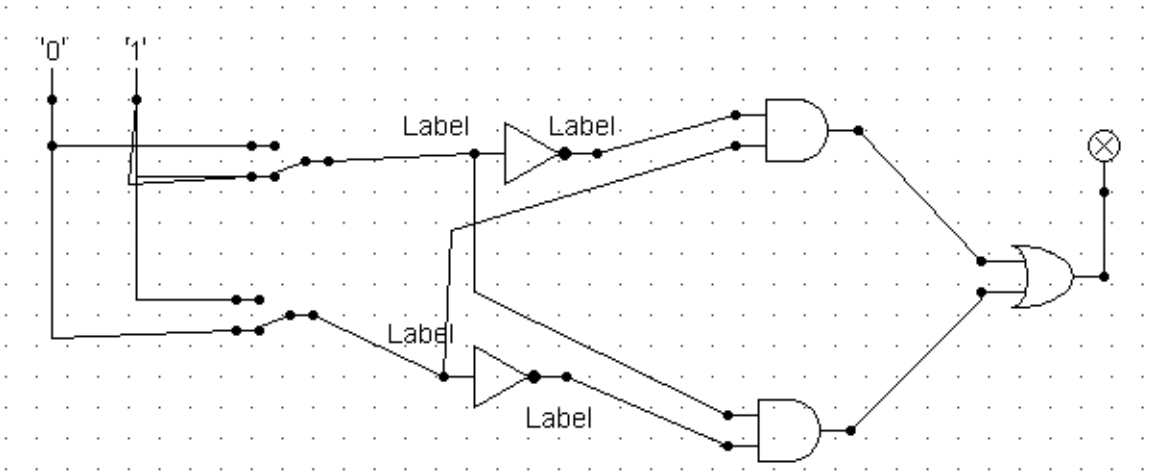
d) NAND (using NOT and AND)

A	B	(A.B)’
0	**0**	**1**
0	**1**	**1**
1	**0**	**1**
1	**1**	**0**



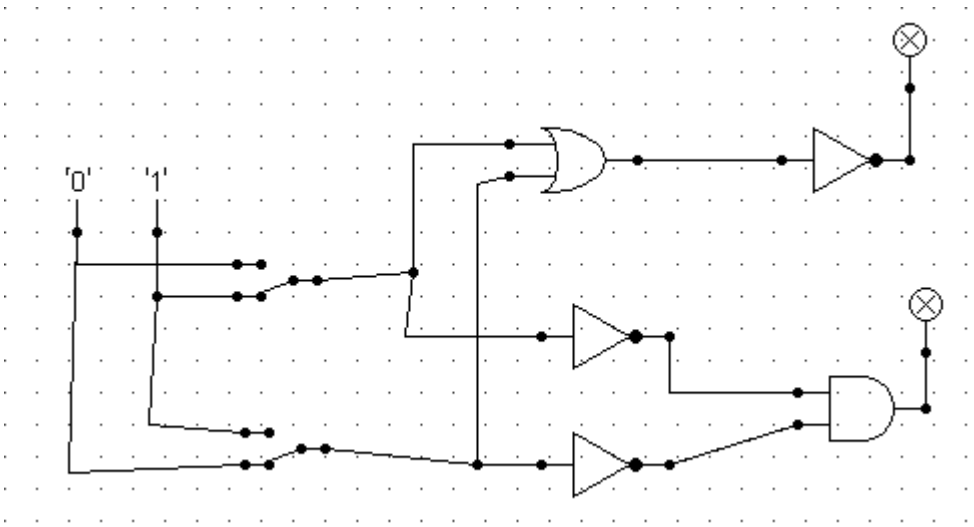
e) XOR using AOI

A	B	A'B+AB'
0	0	0
0	1	1
1	0	1
1	1	0

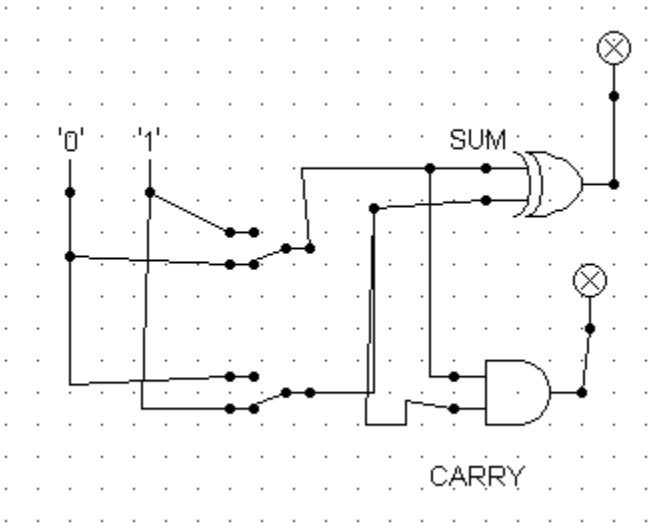


2. Use LogSim to build the equivalent circuit for the following Boolean equations.

A	B	!(A+B)	!A . !B
0	0	1	1
0	1	0	0
1	0	0	0
1	1	0	0

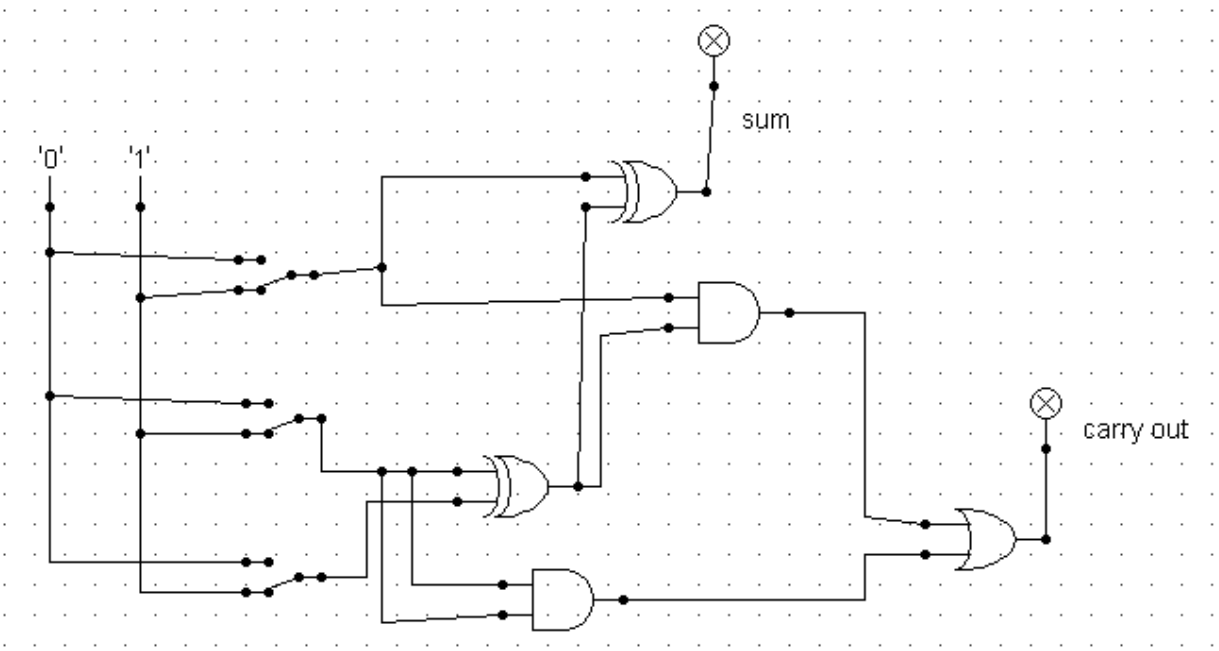


3. Draw the following circuit of half adder using LogSim.



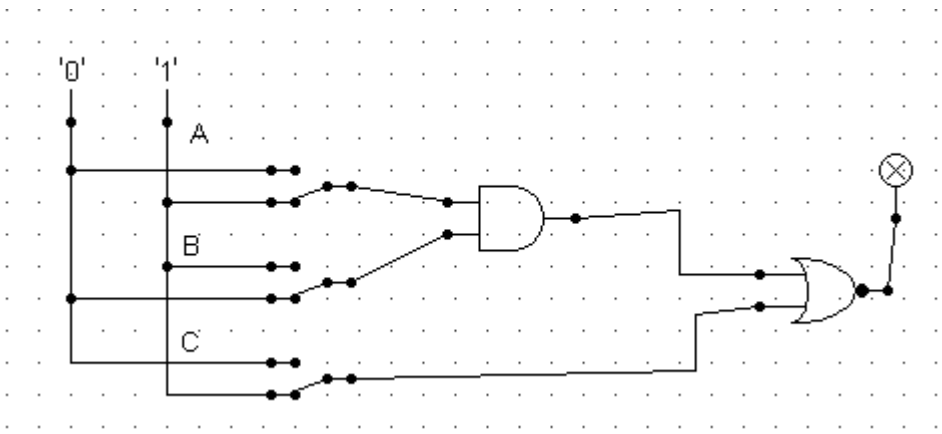
4. Draw full adder using Logsim and construct truth table.

A	B	Carry In	Sum	Carry Out
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

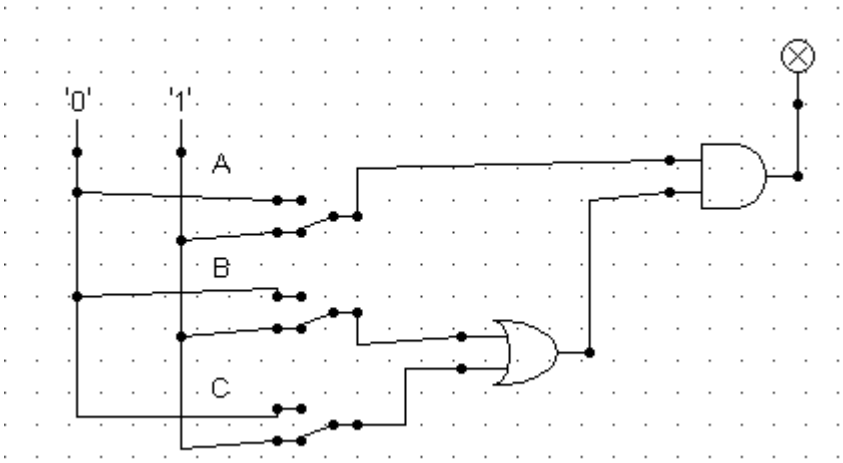


5. Draw the logic circuit for the following Boolean equations using logsim simulator.

a. AB+C



b. A(B+C)



c. X’Y’Z’