

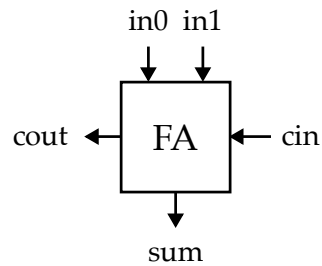
ECE 2300 Digital Logic and Computer Organization, Fall 2026

Lab 2B: Worksheet

Please use one worksheet per group! You only need the worksheet to complete the lab check-off tasks. You do not need to turn the worksheet in, nor save it for your report.

Full Adder Truth Table

The interface for a full adder is shown below.

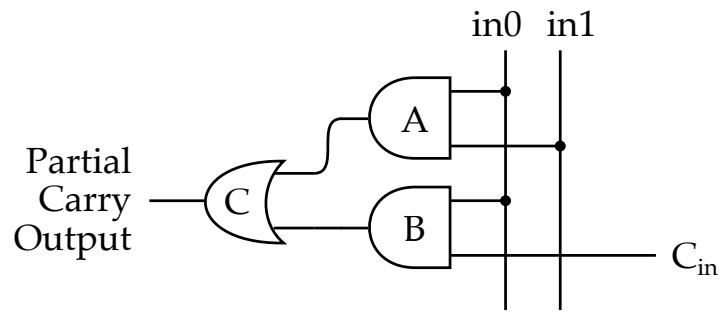


Fill in the truth table for a full adder.

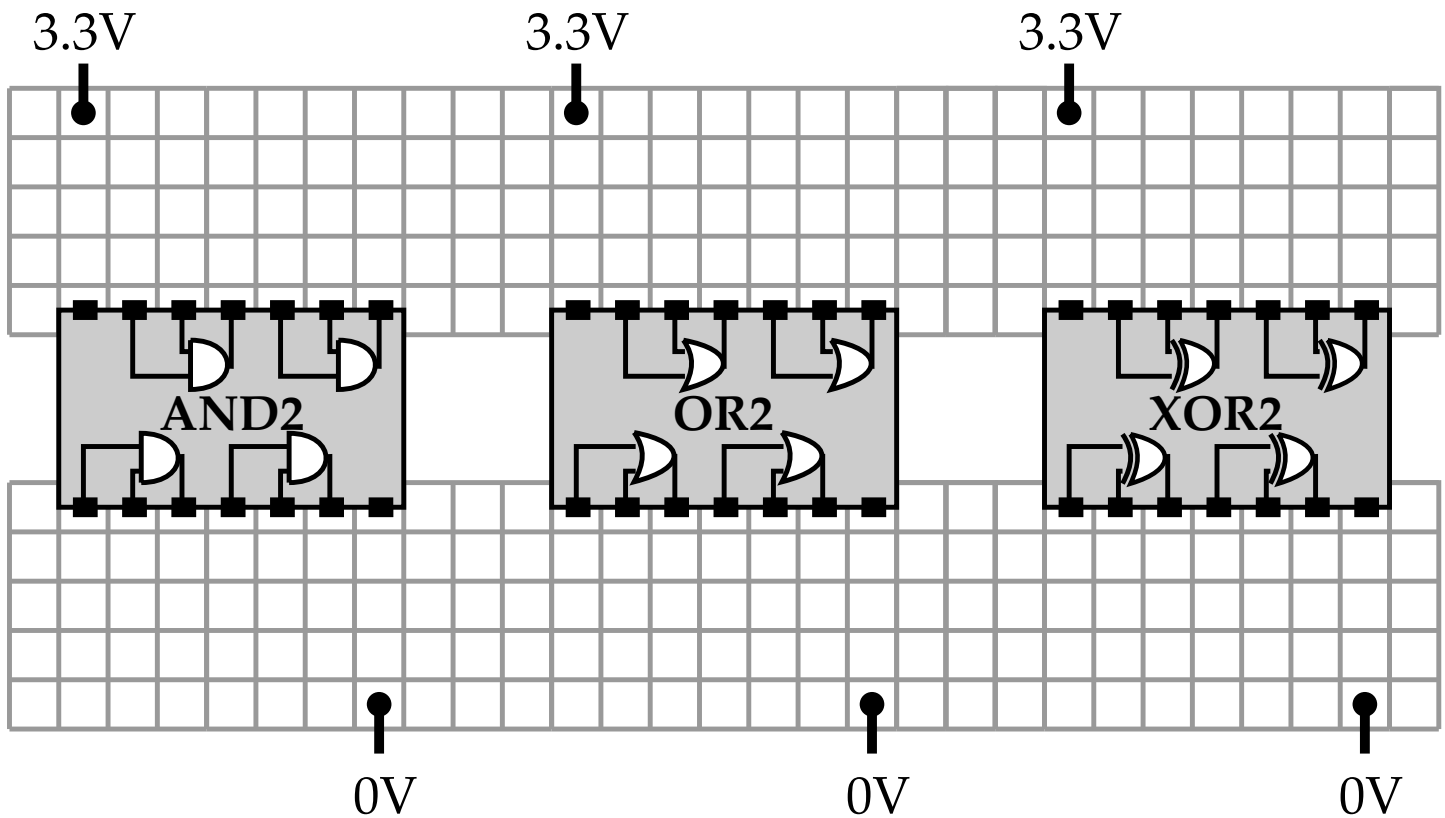
in0	in1	cin	cout	sum
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

Partial Carry Logic

Here is the first step which only partially implements the carry logic.

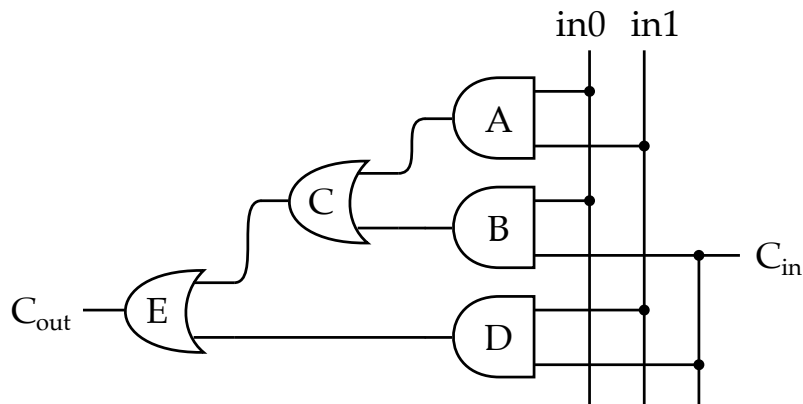


Draw lines to plan how you want to wire up the full adder on the breadboard. Think carefully about how to avoid too many crossing wires. Use as many short straight horizontal routes as you can, so you can implement these routes using custom cut jumpers.

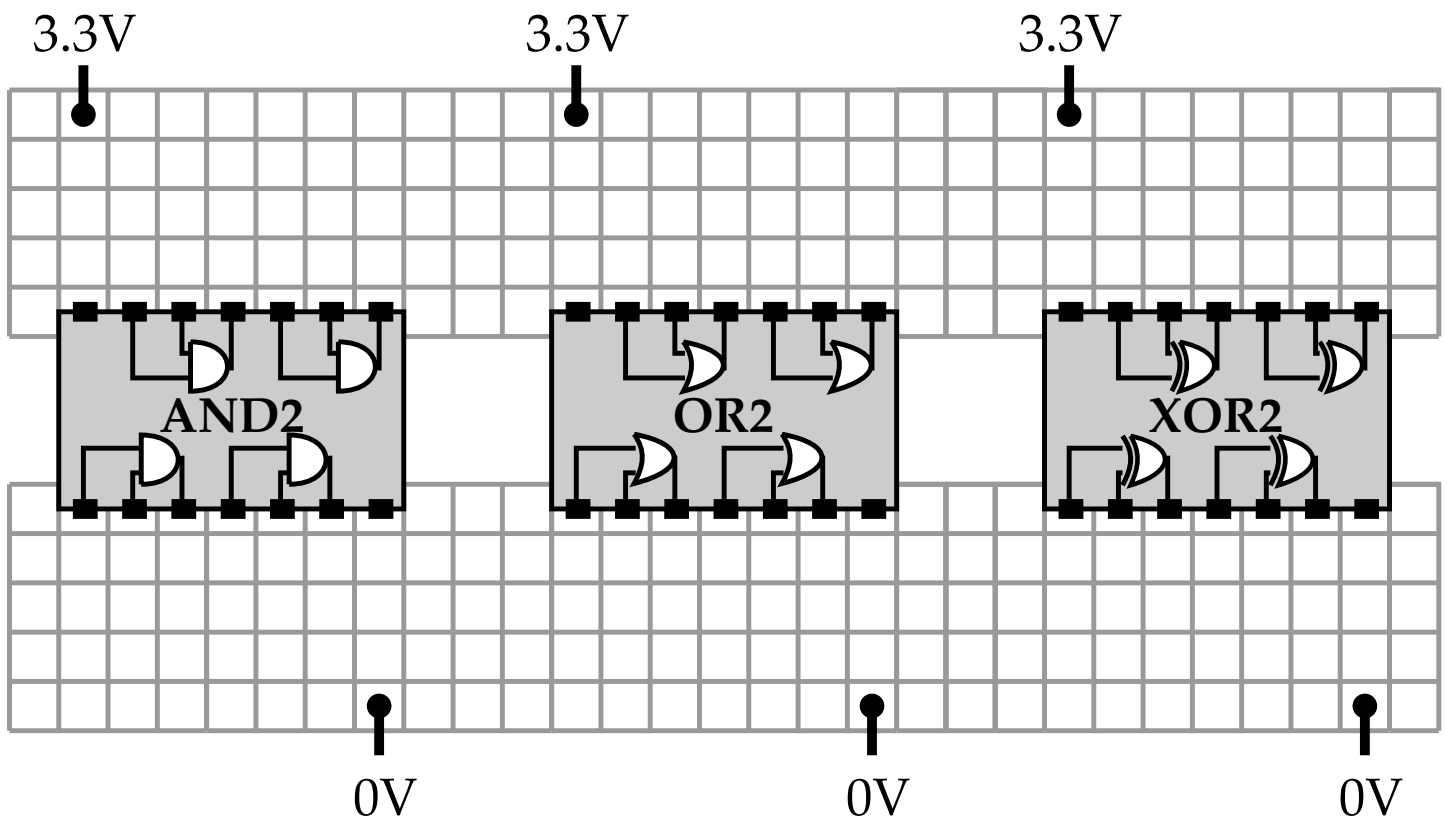


Carry Logic

Here is the second step which fully implements the carry logic.

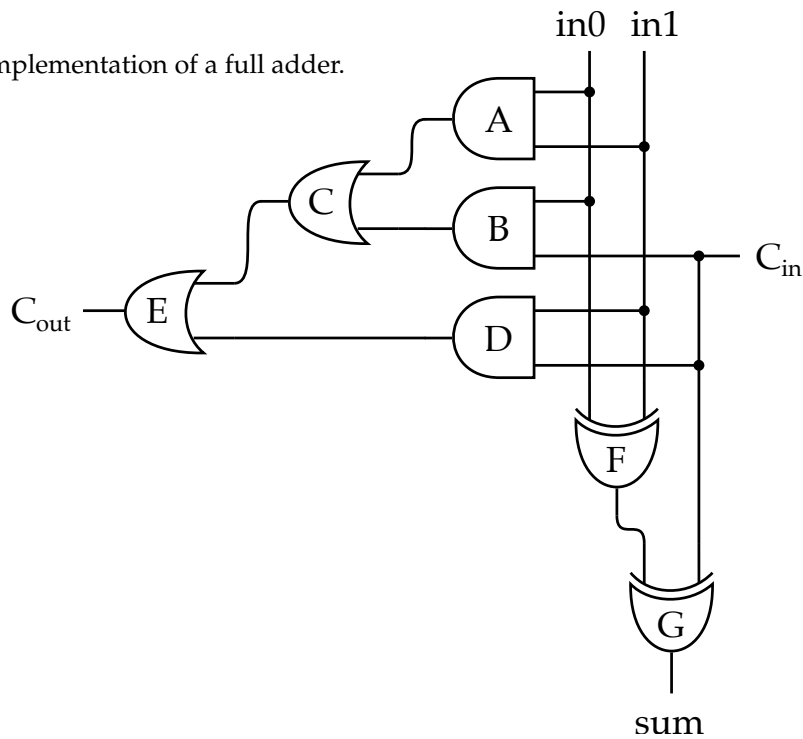


Draw lines to plan how you want to wire up the full adder on the breadboard. Think carefully about how to avoid too many crossing wires. Use as many short straight horizontal routes as you can, so you can implement these routes using custom cut jumpers.

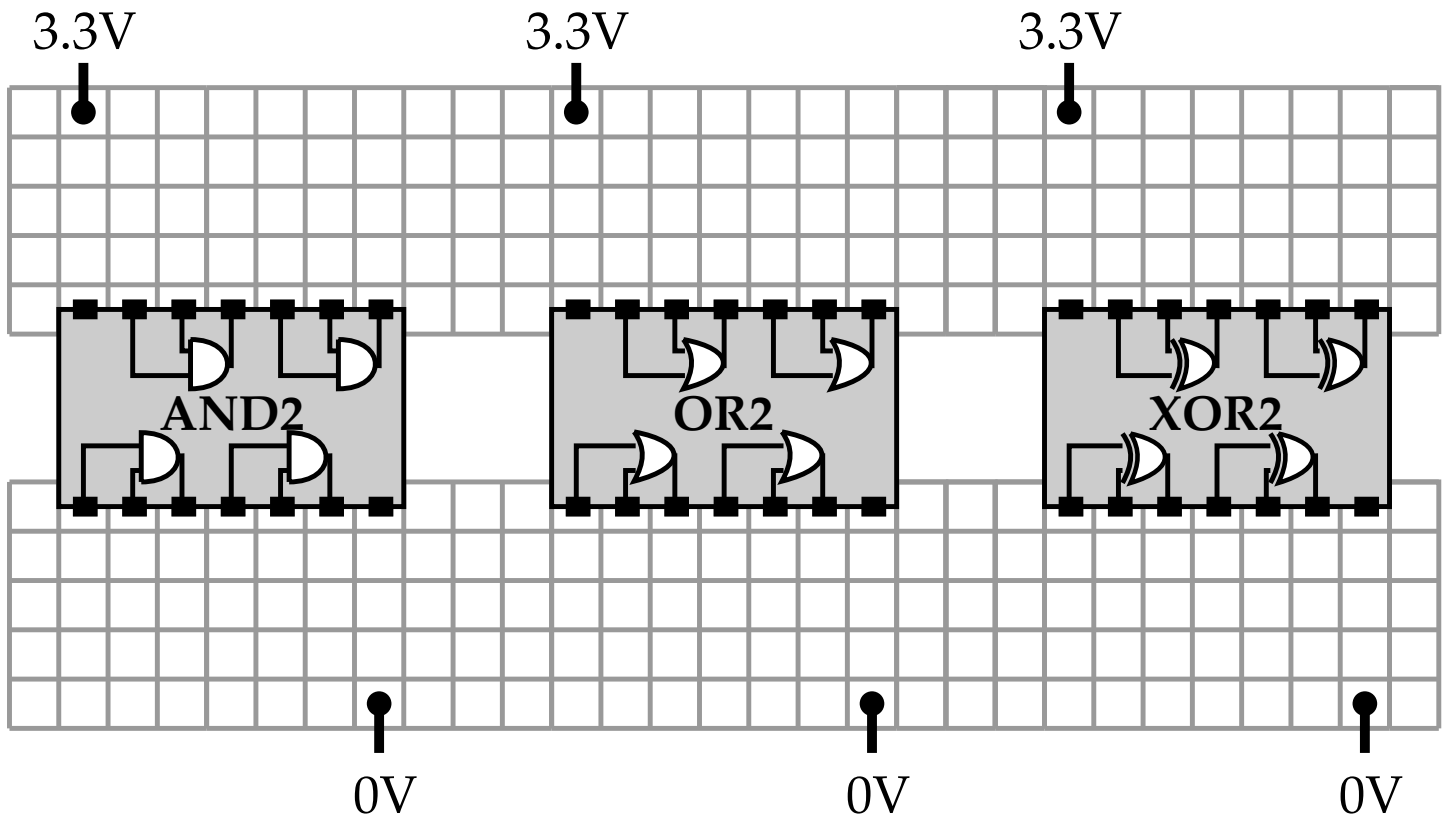


Sum Logic

Here is the complete implementation of a full adder.

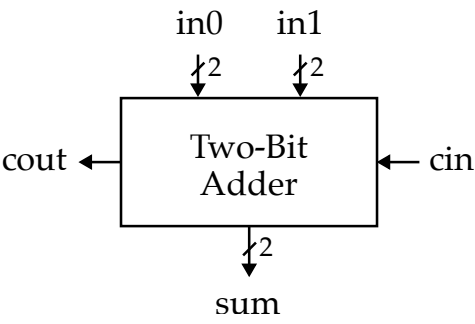


Draw lines to plan how you want to wire up the full adder on the breadboard. Think carefully about how to avoid too many crossing wires. Use as many short straight horizontal routes as you can, so you can implement these routes using custom cut jumpers.



Ripple Carry Adder Truth Table

The interface for a two-bit adder is shown below.



Fill in the truth table for a two-bit full adder.

in0	in1	carry0	cin	cout	sum
00	00	0	0	0	00
00	01		0		
00	10		0		
00	11		0		
01	00		0		
01	01		0		
01	10		0		
01	11		0		
10	00		0		
10	01		0		
10	10		0		
10	11		0		
11	00		0		
11	01		0		
11	10		0		
11	11		0		