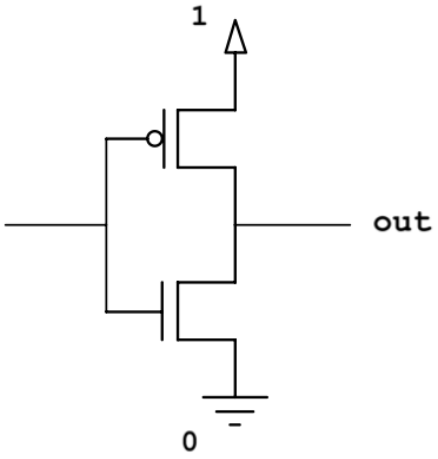
Homework Assignment 5

pMOS  **conducts when the incoming voltage is low (0)**

nMOS  **conducts when the incoming voltage is high (1)**

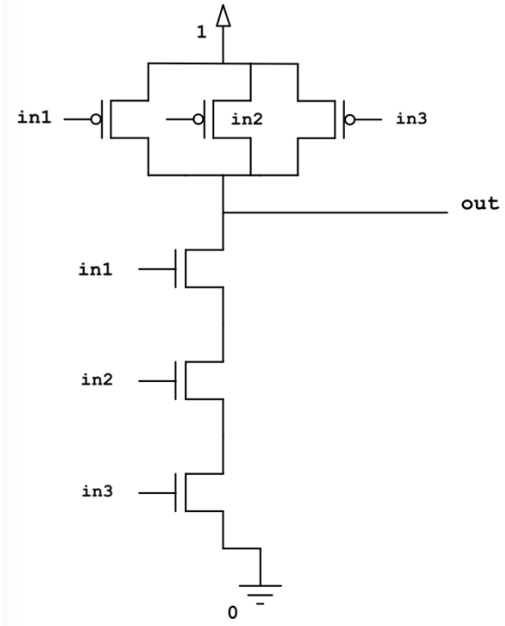
Parallel – just one semiconductor needs to conduct

Series – all semiconductors need to conduct



1. If this CMOS inverter was given an input of 1, what would be the output?
2. If this CMOS inverter was given an input of 0, what would be the output?
3. What is the logical operation being performed?
4. Fill out its truth table.

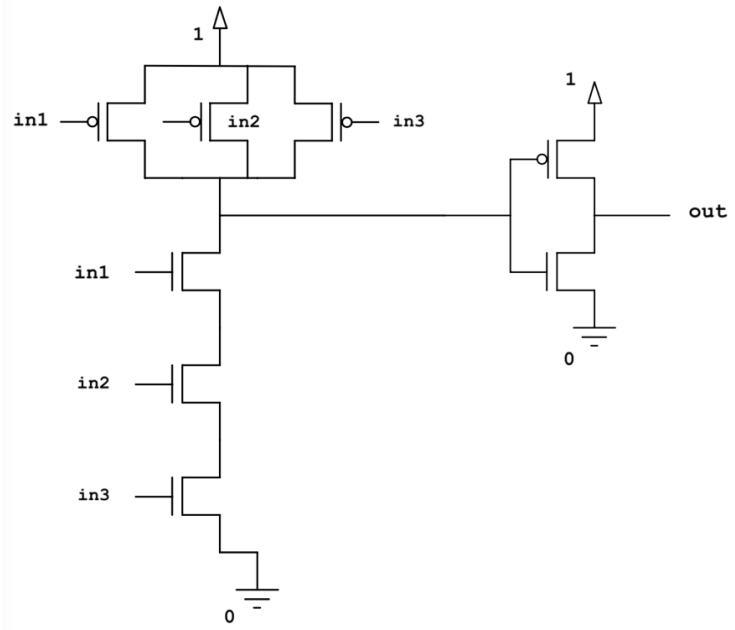
in1	out
0	
1	



5. Fill out the truth table for the gate on the left.

in1	in2	in3	out

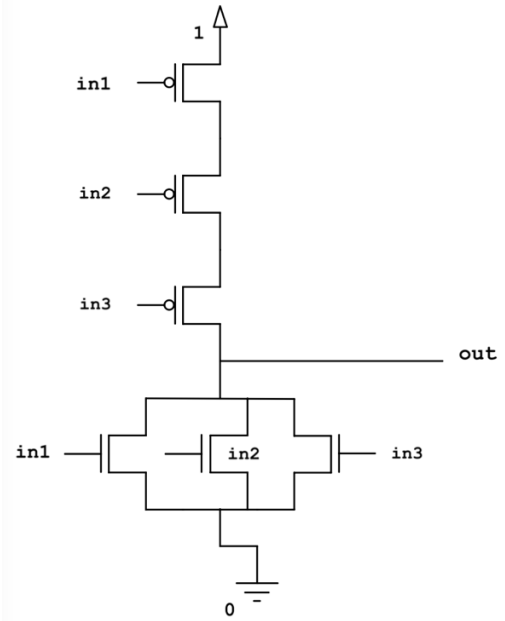
6. What is the logical operation being performed?



7. Fill out the truth table for the gate on the left.

in1	in2	in3	out

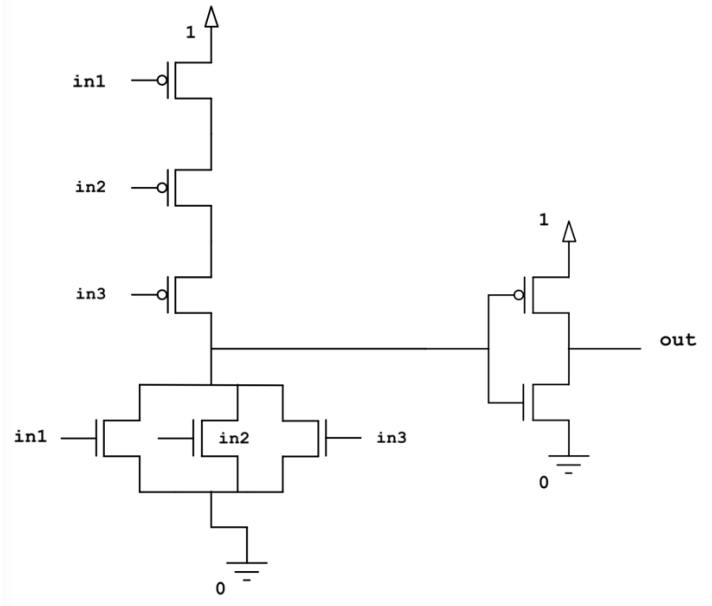
8. What is the logical operation being performed?



9. Fill out the truth table for the gate on the left.

in1	in2	in3	out

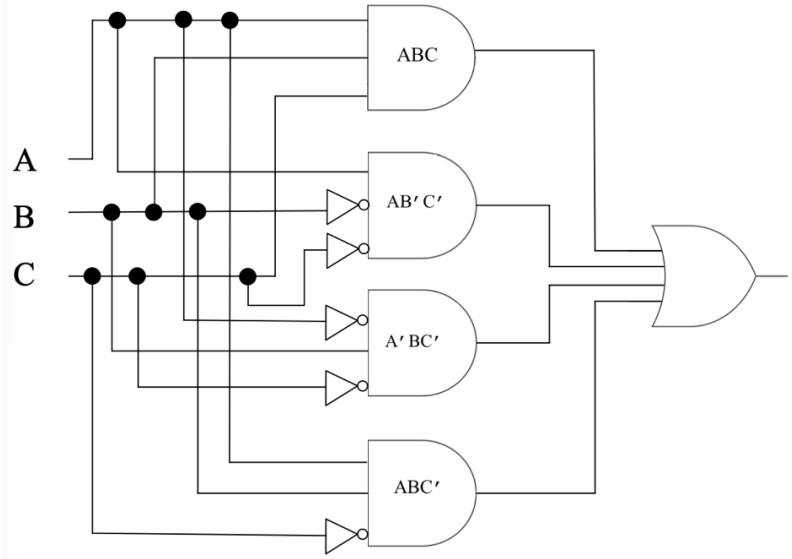
10. What is the logical operation being performed?



11. Fill out the truth table for the gate on the left.

in1	in2	in3	out

12. What is the logical operation being performed?



A	B	C	out
1	1	1	1
1	1	0	0
1	0	1	0
1	0	0	1
0	1	1	0
0	1	0	1
0	0	1	1
0	0	0	0

13. What is the final expression for the logic gate above?

14. What logical operation does the truth table appear to be equivalent to?