

BLG 231E - Digital Circuits

Assignment 4

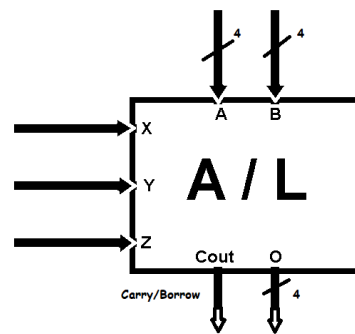
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1. The combinational circuit ARITHMETIC/LOGIC (A/L) performs the following operations depending on the value of the control inputs X, Y, and Z.

X	Y	Z	Result (O)	Cout
0	0	0	$B - A$	Borrow
0	0	1	$A + B$	Carry
0	1	0	$A - 5$	Borrow
0	1	1	Φ	Φ
1	0	0	$A \cdot B$	Φ
1	0	1	Φ	Φ
1	1	0	$A \oplus B$	Φ
1	1	1	Φ	Φ

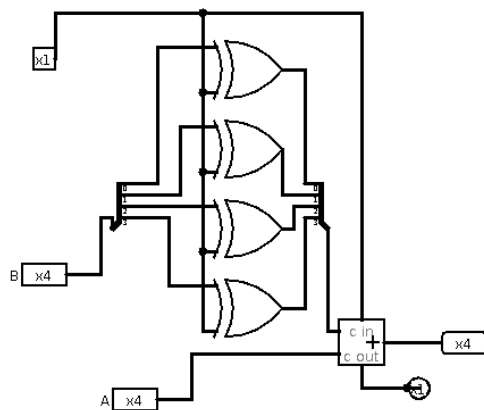


Design and draw this circuit using **only** the standard components and logic gates given below, paying attention to the maximum number allowed for the first three:

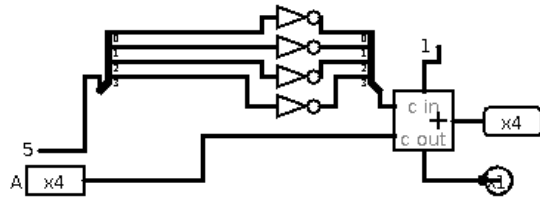
1) B-A and B+A; I shoved both of them in the circuit below.

If x1 is "0" it execute B+A.

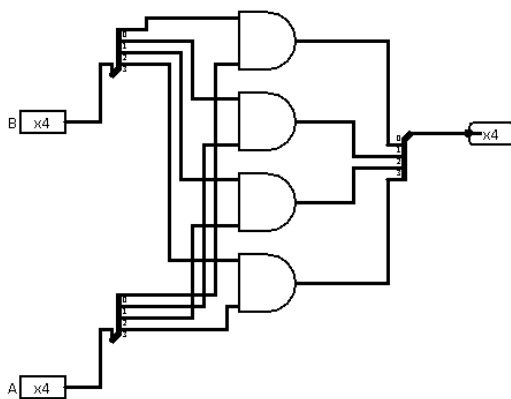
If x1 is "1" it execute B-A.



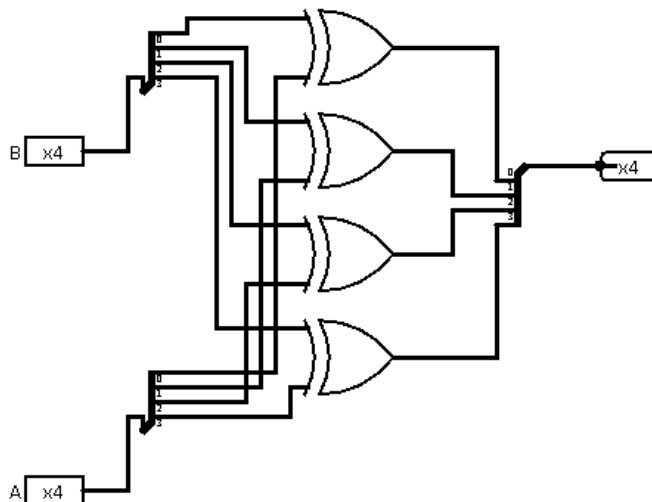
2) This circuit Show (A-5) and x1 shows the Cout.



3) This circuit is for (A.B)



4) This circuit is for (A xor B)



5) Lastly I combined all of the circuit in MUX. According to the truth table.

