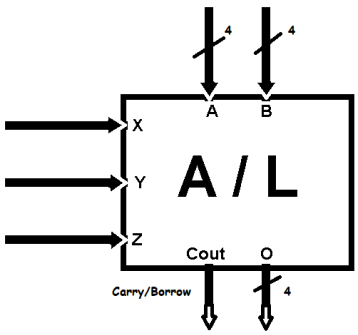
BLG 231E - Digital Circuits

Assignment 4

Name Surname: Seyfülmülük Kutluk
Student ID: 150180073
CRN: 11623

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 · B	Φ
1	0	1	Φ	Φ
1	1	0	A ⊕ B	Φ
1	1	1	Φ	Φ

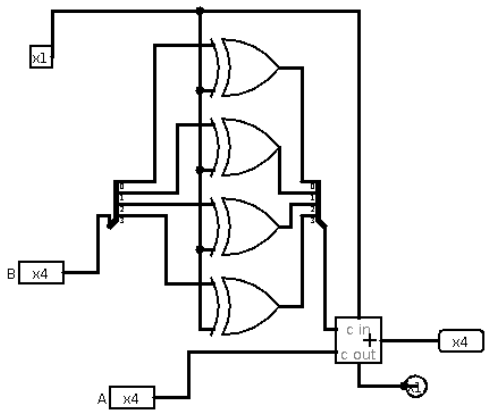


Design and draw this circuit using ONLY the standard components and logic gates given below

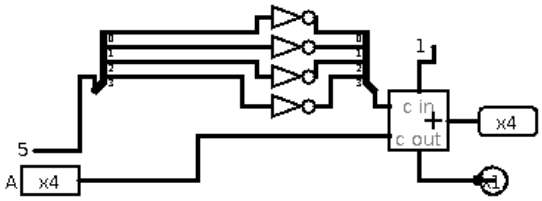
---

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

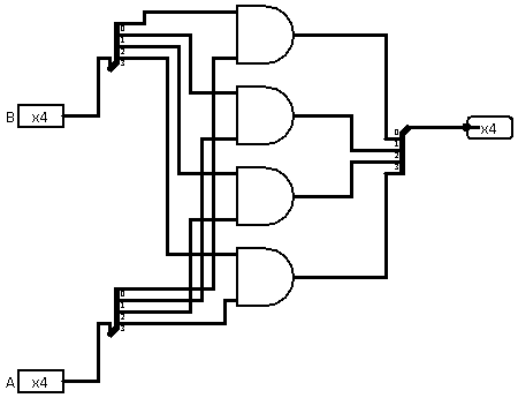
If x1 is “0” it execute B+A.
If x1 is “1” it execute B-A.



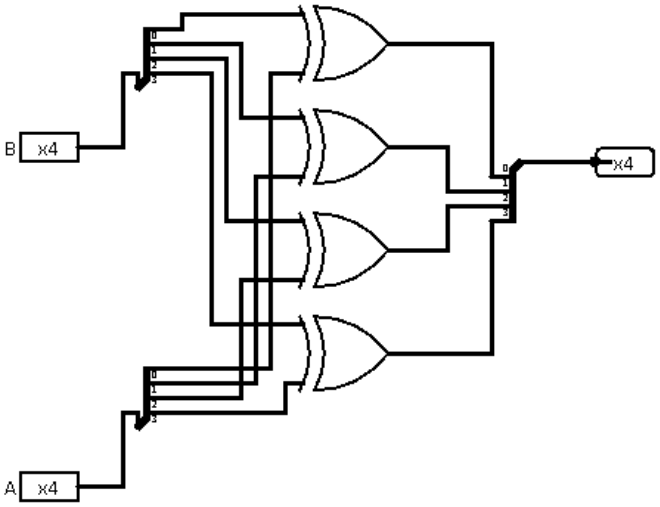
2) This circuit Show (A-5) and x1 shows the Cout.



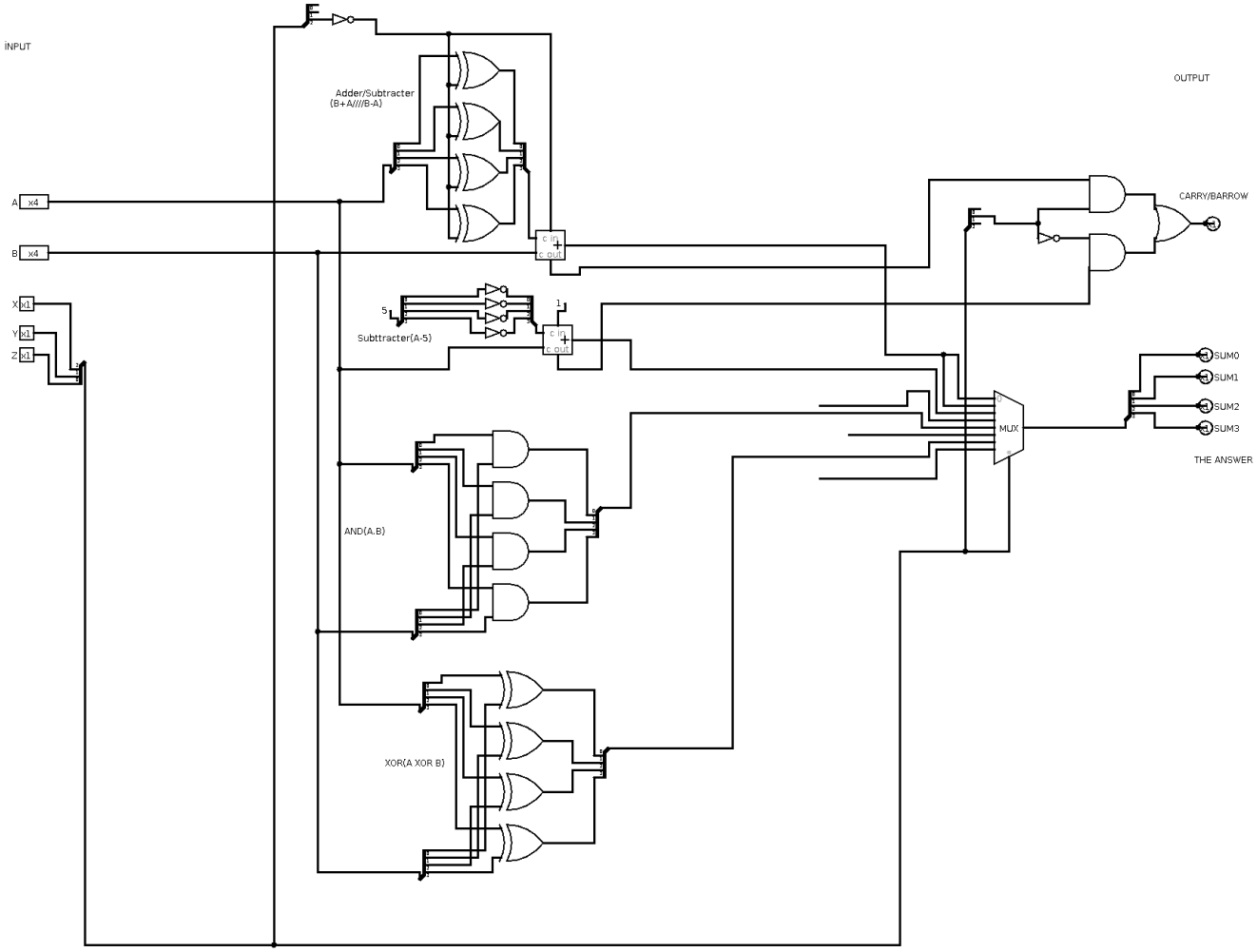
3) This circuit is for (A.B) : There is also with 2 input 4 bit and gate in the last image



4) This circuit is for (A xor B) : There is also with 2 input 4 bit xor gate in the last image



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



With 2 input AND and XOR gates.