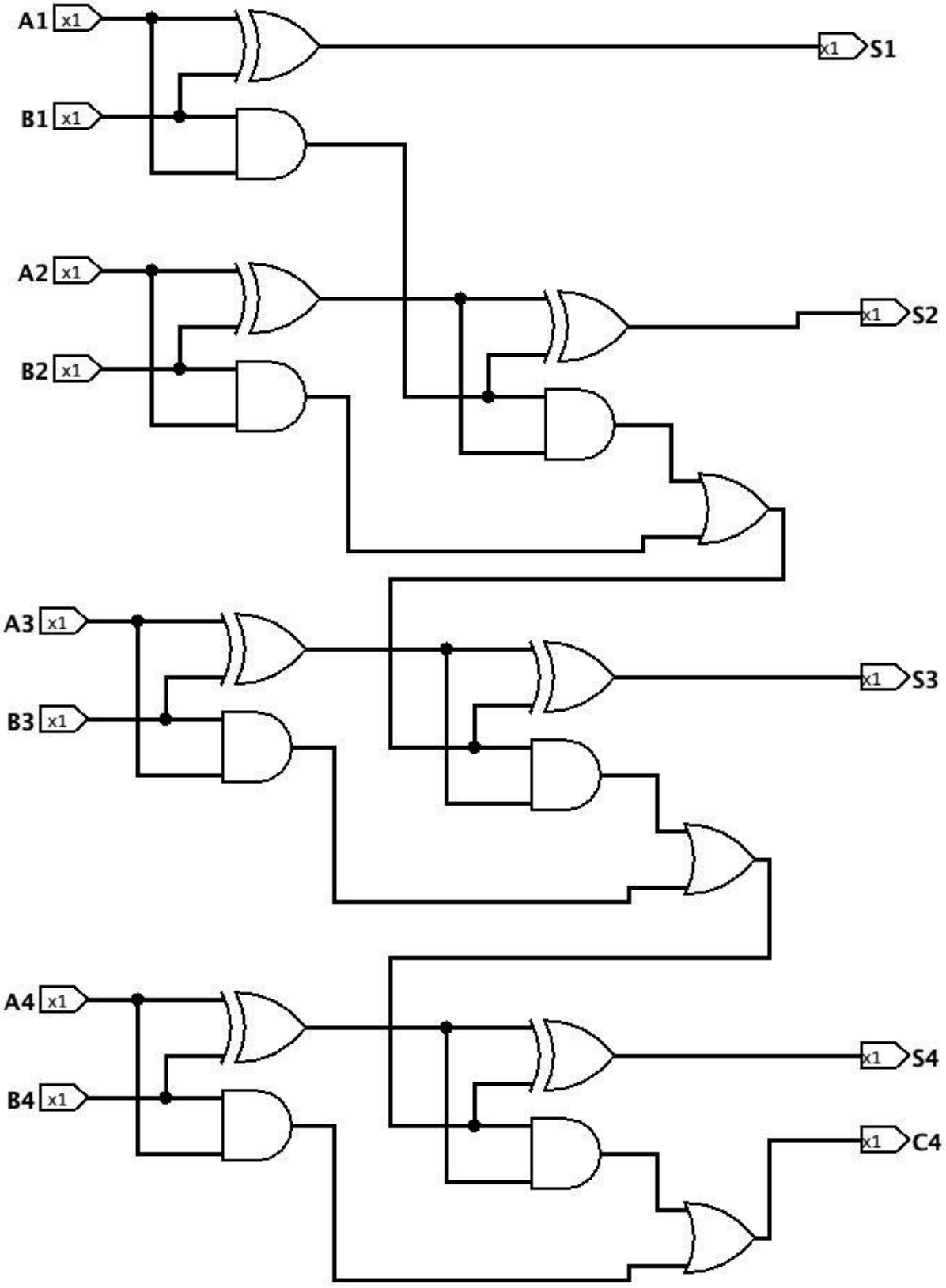
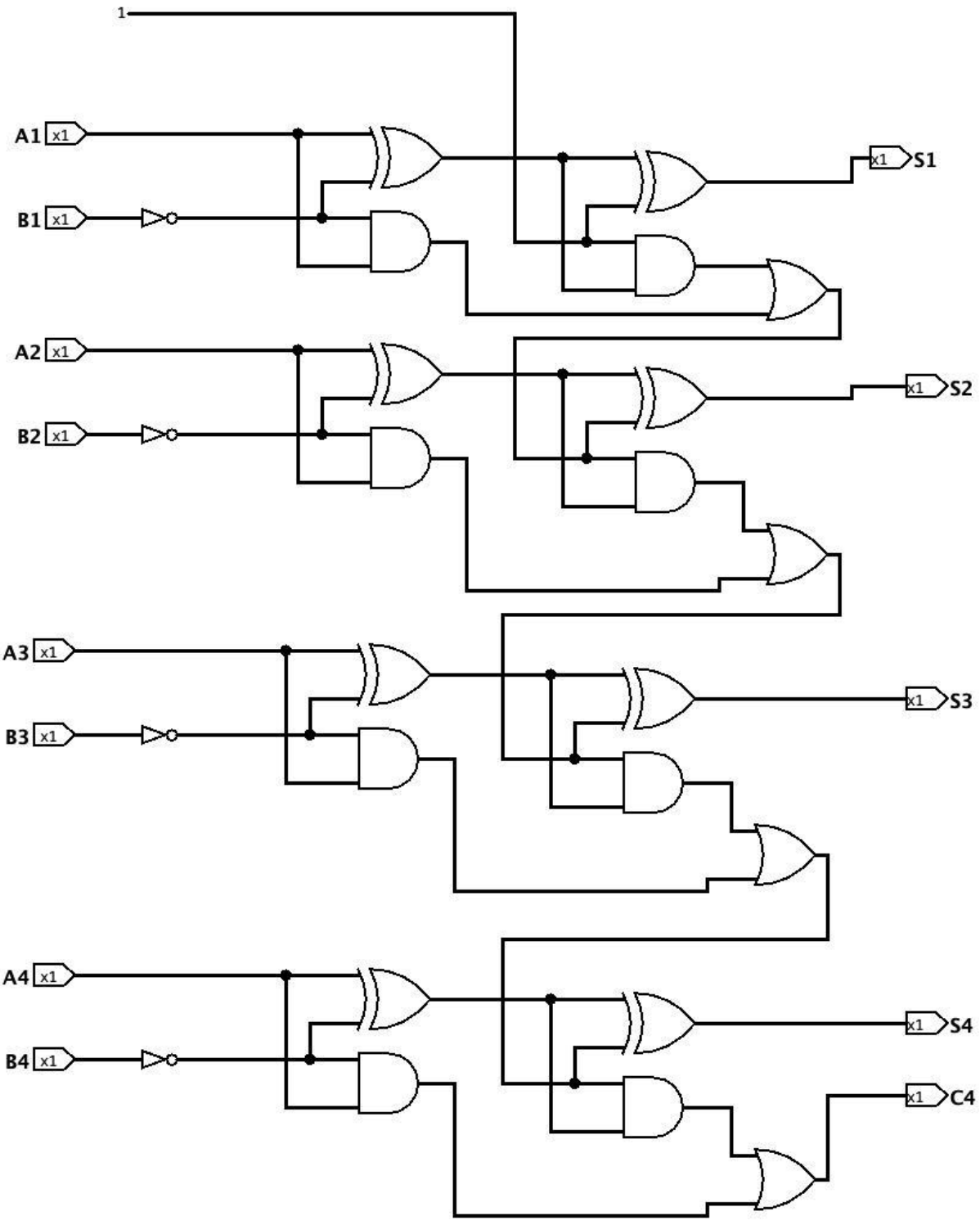
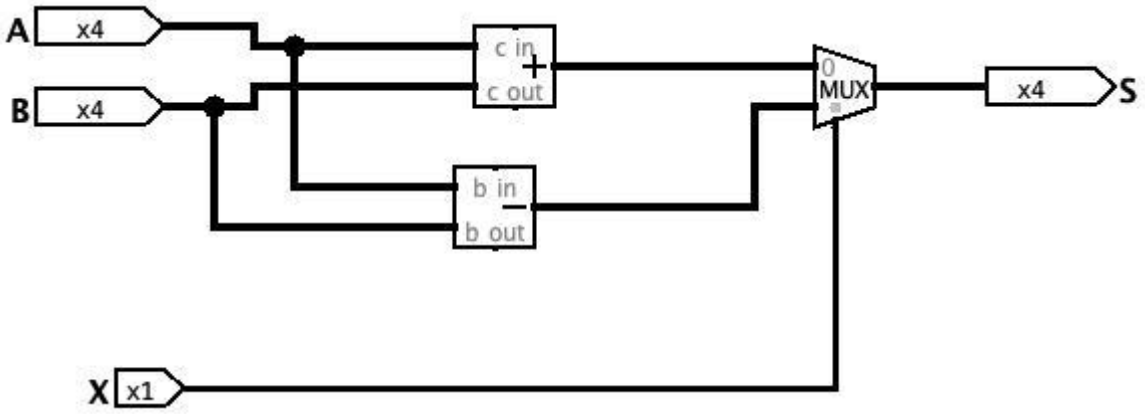
First you must create a logic circuit using only basic gates such as AND, OR, NOR, NAND, NOT, etc. to implement an ADDER capable of adding two 4 bit binary numbers.



Second you must create a logic circuit using only basic gates such as AND, OR, NOR, NAND, NOT, etc. to implement a Subtractor that is capable of subtracting the second number from the first, by converting the second number into its 2's complement form and then adding the resulting number to the first number. You do not need to worry about accomodating the addition or subtraction of negative numbers as part of your assignment.



Finally, for the third part of the assignment you must create a limited ALU (Arithmetic logic unit) circuit using Logism that implements a Full Adder circuit capable of adding 2 – 4 bit binary numbers and subtracting 2- 4 bit binary numbers. You must also implement the ability to select a bitwise AND operation and a bitwise OR operation. For the ALU it is acceptable to use the Adder and Subtractor circuits that are listed under the "Arithmetic" folder in Logism. Please check the video lecture on Logism tips and tricks to learn how to use multi bit pins, and how to set up different gates to support more than 1 bit.



Best Regards.