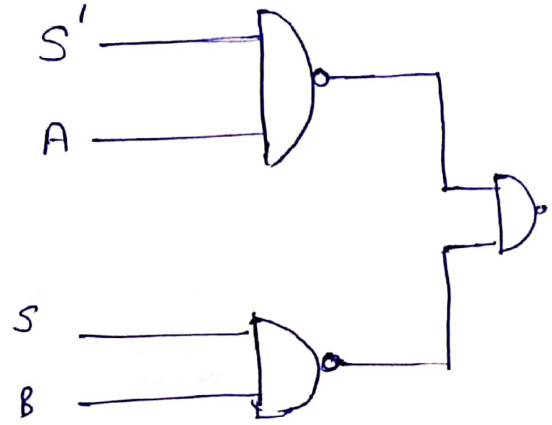
Assignment - 2

Q1 Design an adder substractor 8 bit circuit using any 2-input gates, and count the number of gates required and the delay of the circuit.

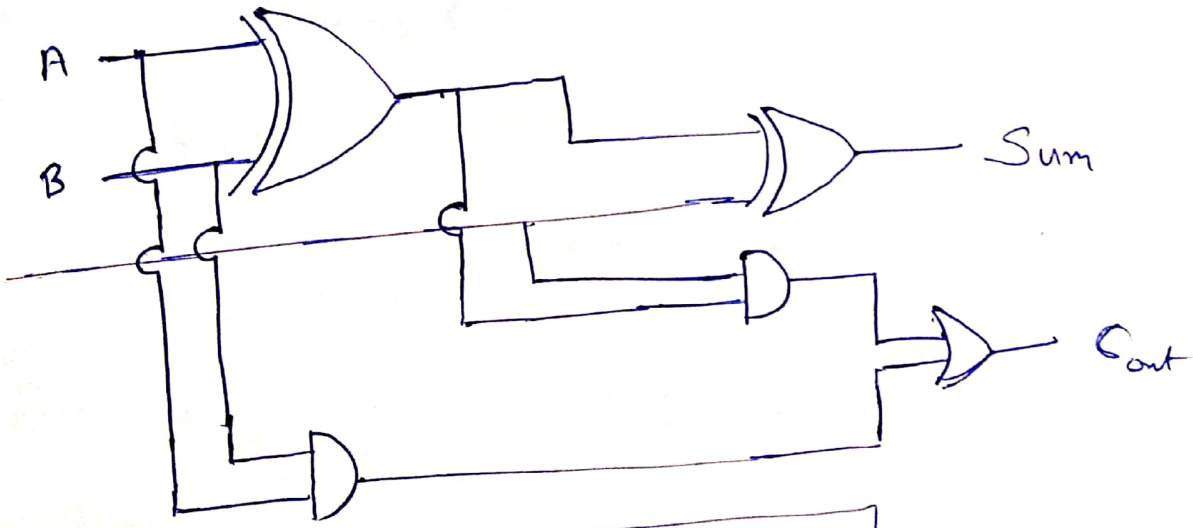
Solution

We first draw the basic circuit and then a full circuit.



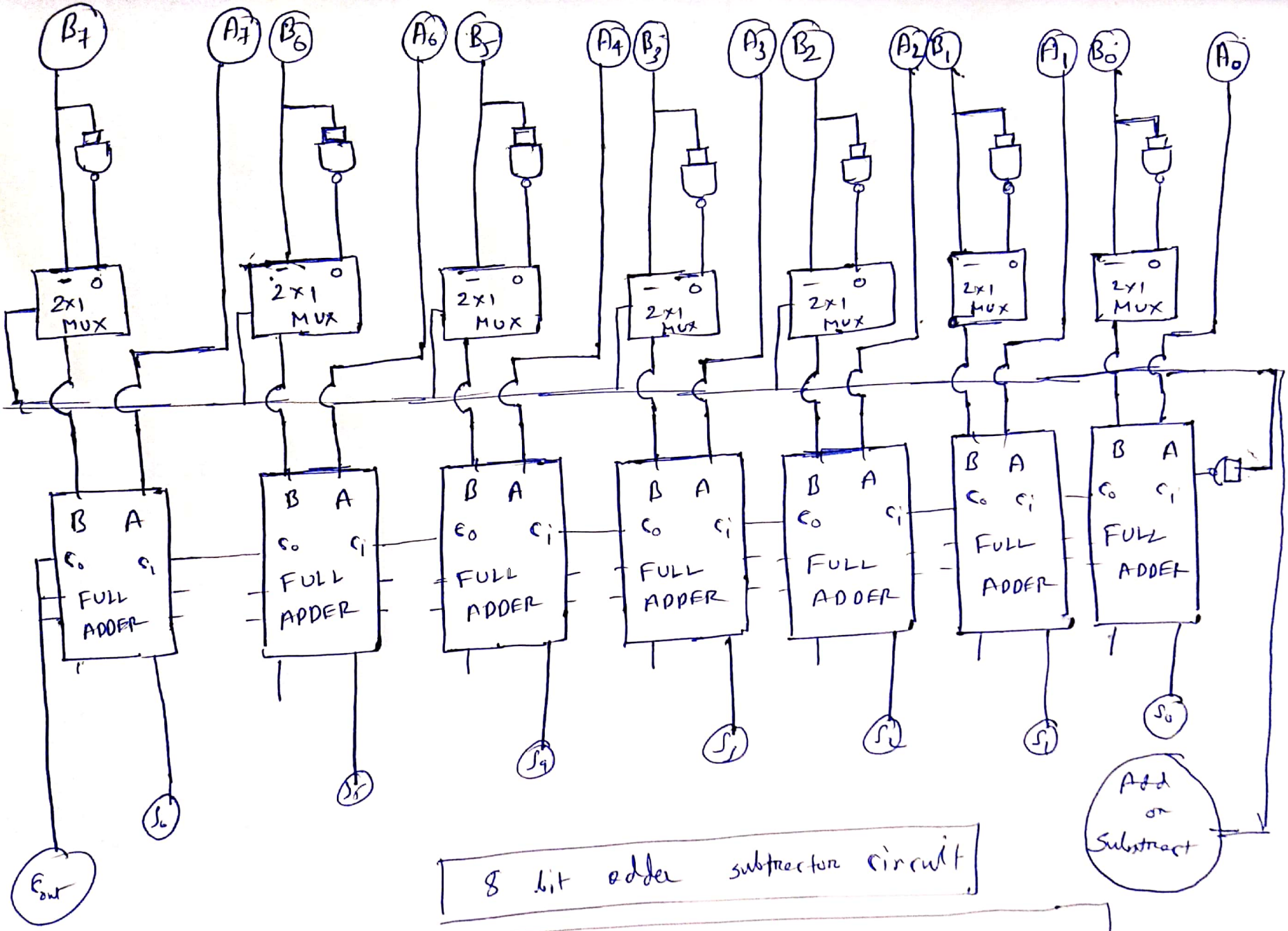
Number of gates in a 2×1 MUX = 3.

2×1 MUX



1-bit FULL ADDER

Number of gates in a 1-bit Full ADDER = 5.



8 bit adder subtractor circuit

Total number of gates = 9 + 8×3 + 8×5 = 73