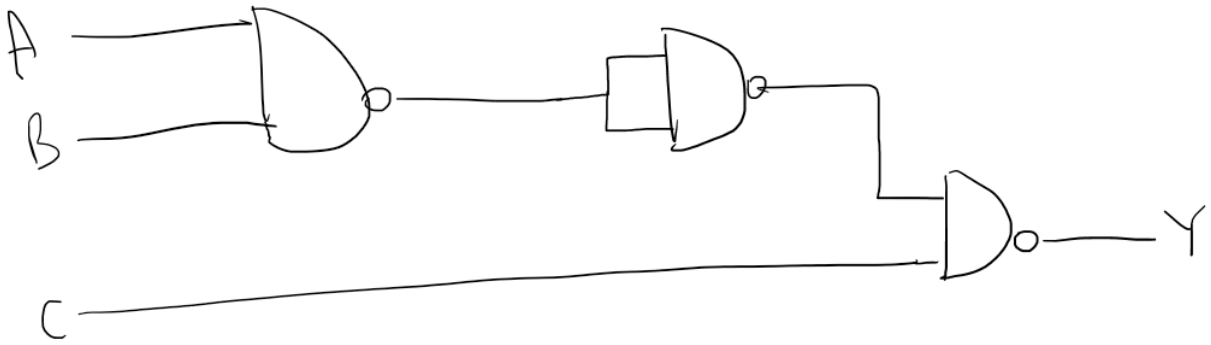
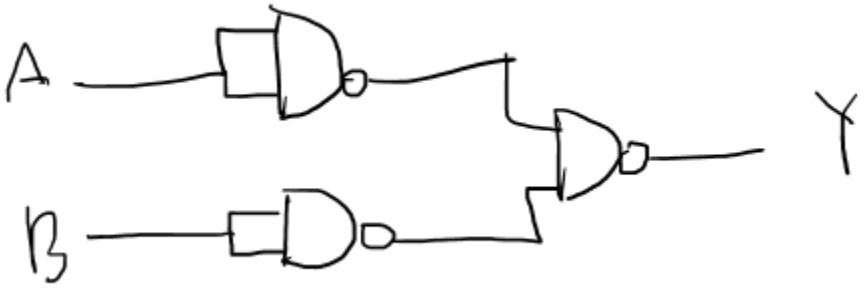
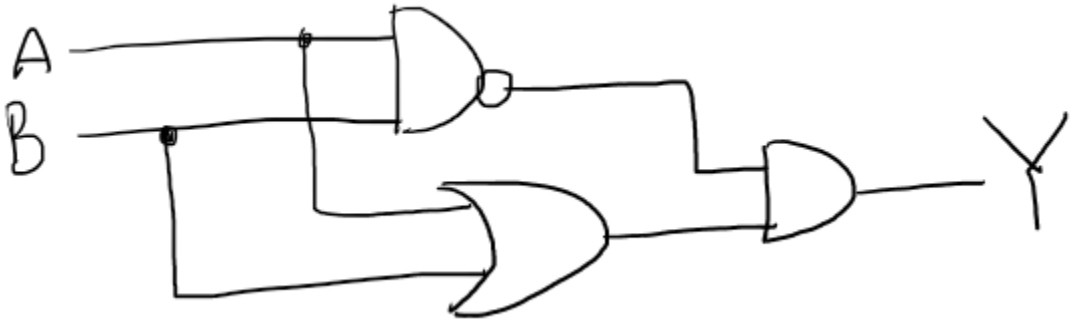
1. An inverter can be implemented with 1 input connected to both the terminals. Another way can be to connect one of the inputs to power which would result in a constant 1 state and the input signal to the other.



2.

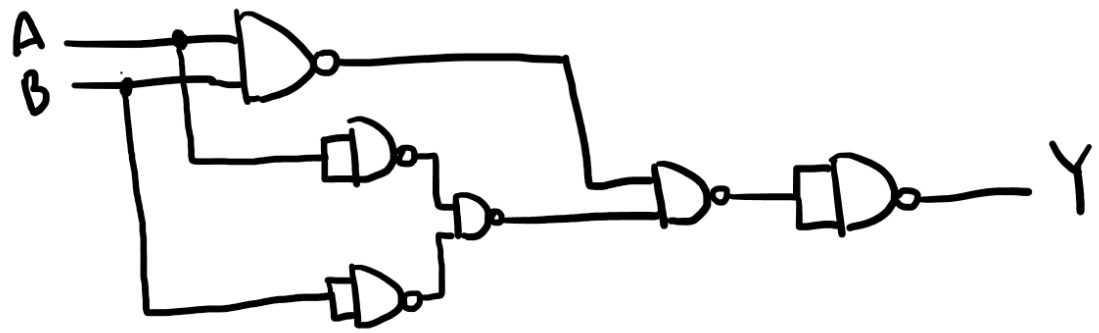


3.
4. (A+B)·!(AB)



a.

b.



c.

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

The common name of this function is XOR

$$Z = f(A,B) = (A+B)\overline{AB}$$

$$= A(\overline{AB}) + B(\overline{AB})$$

$$= A\overline{B} + \overline{A}B$$

d.