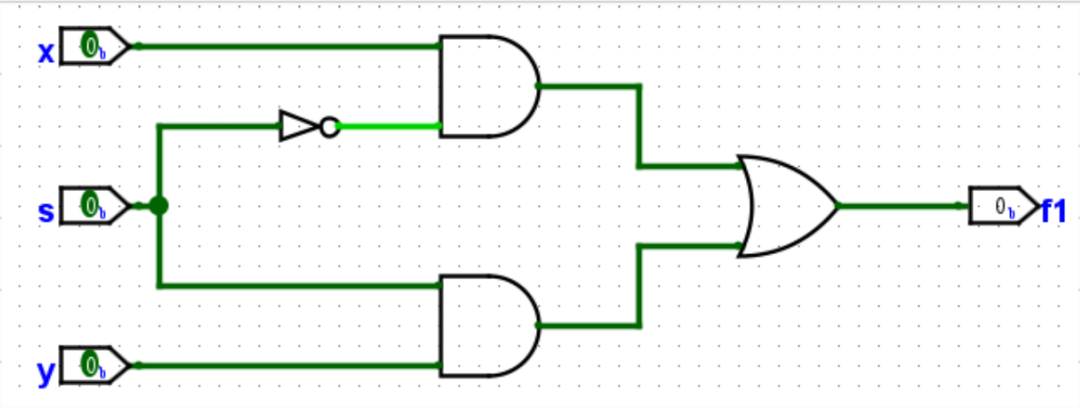
Part 1:

$f = xs' + ys$

1.

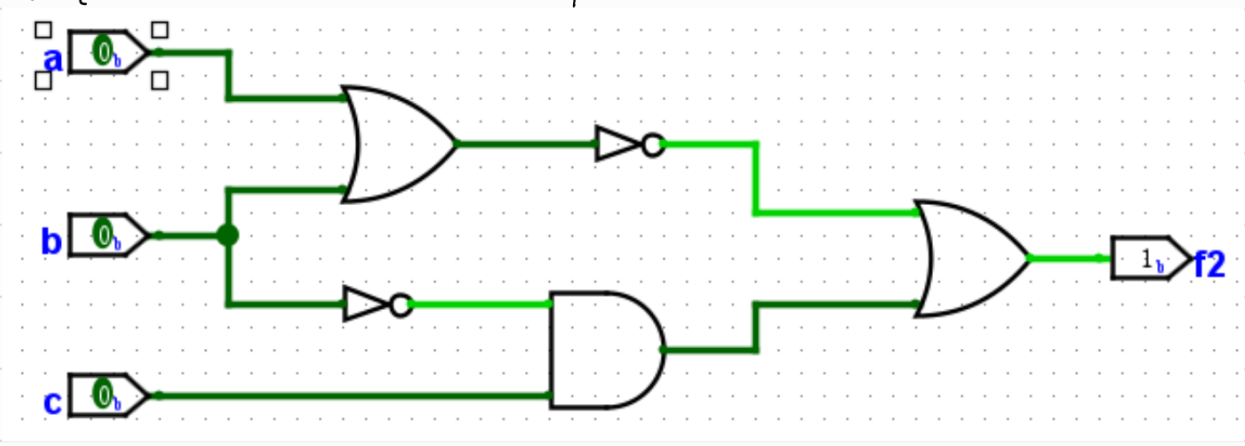


2. truth table:

x	s	y	f1
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	1

Part 2: $f = (a+b)' + cb'$

1.



2. Truth table:

a	b	c	f2
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

3. $(a+b)' = a'b'$ by de Morgan's law

then $a'b' + cb' = b'(a'+c)$

verification:

a	b	c	f2
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

less 1 gate