ALU

0 = AND
1 = ADD

zx	nx	zy	ny	f	no	operation
0	0	0	0	0	0	x AND y
0	0	0	0	1	0	x + y
0	1	0	1	0	1	x OR y
0	1	1	0	1	0	$\bar{x}$
0	0	1	1	1	0	x − 1
1	0	1	0	0	0	0
1	0	1	1	1	0	−1
1	1	1	1	1	1	1
0	1	1	1	1	1	x + 1
0	0	1	1	1	1	−x
0	1	0	0	1	1	x − y

$-x = \bar{x} + 1$

$\bar{x} = -x - 1$

$\overline{x + 0}$

$\overline{x - 1} = -(x-1) - 1$

$= -x$

$\overline{\bar{x} + y} = \ldots = x - y.$

$\overline{\bar{x} - 1}$

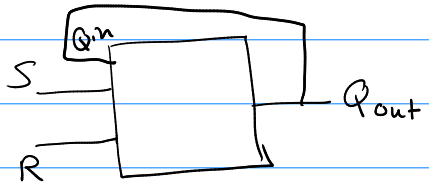
$= -(\bar{x} - 1) - 1$

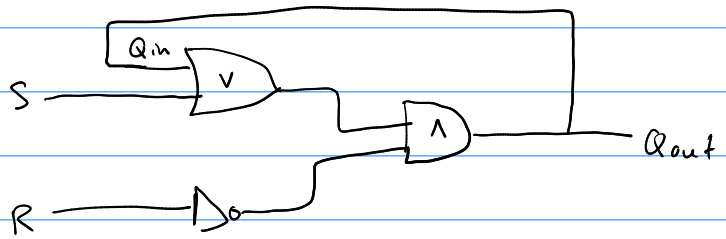
$= -(-x - 1 - 1) - 1$

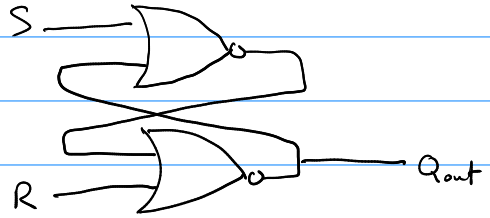
$= x + 1$

Memory!

SR latch

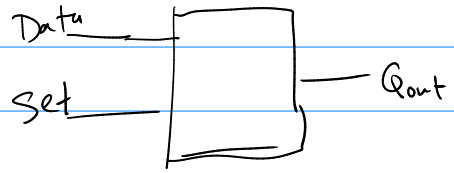






S	R	Qout
0	0	Q_{in}
1	0	1
0	1	0
1	1	!!

D latch (data latch)



Data	Set	Qout