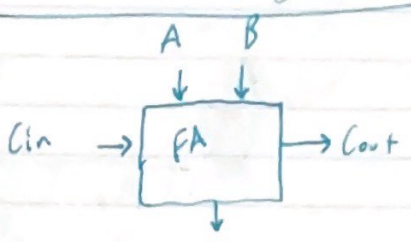
4-bit Ripple Carry adder

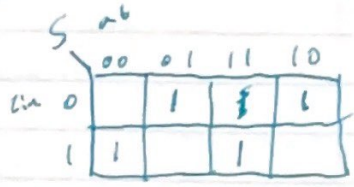
1-Bit Truth Table

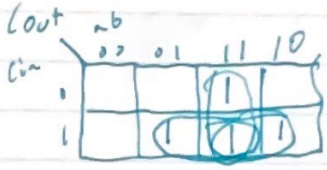


$S = (A \oplus B) \oplus C_i$

Cin	A	B	Cout	S
0	0	0	0	0
0	0	1	0	1
0	1	0	0	1
0	1	1	1	0
1	0	0	0	1
1	0	1	1	0
1	1	0	1	0
1	1	1	1	1

- $S = (\overline{C_i}\,\overline{A}\,B) + (C_i\,\overline{A\,B}) + (C_i\,AB) + (\overline{C_i}\,A\,\overline{B})$
- $C_{out} = (C_iB) + (AB) + (C_iA)$





4-bit Ripple Carry adder: