1-bit Full Adder

Carry-In	A	B	Sum	Carry-out
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

CIN \ AB	00	01	11	10
0	0	1	0	1
1	1	0	1	0

$$Sum = CIN'A'B + CIN'AB + CIN A'B' + CN\,AB$$
$$= CIN \text{ XOR } A \text{ XOR } B$$

CIN \ AB	00	01	11	10
0	0	0	1	0
1	0	1	1	1

$$Cout = AB + CIN\,B + CIN\,A$$
$$= AB + CIN\,(A+B)$$