Full subtractor :

→ Full subtractor performs subtraction of three binary bits 1. minuend bit A

2. Subtrahend bit B

3. borrow-in bit Bin

→ It produces two outputs 1. the difference bit D

2. borrow-out bit Bout

→ minuend - the bit to be subtracted from

Subtrahend - the bit to Subtract

Bin - Borrow from the previous lower significant bit.

	B	Bin	D	Bout
0	0	0	0	0
0	0	1	1	1
0	1	0	1	1
0	1	1	0	1
1	0	0	1	0
1	0	1	0	0
1	1	0	0	0
1	1	1	1	1

Boolean Expression

$$D = A \oplus B \oplus Bin$$

$$Bout = \bar{A}(B \oplus Bin) + B \cdot Bin$$

Gate level