



| A | B | Ci | Co | 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 |

$$S = \bar{A} \bar{B} Ci + \bar{A} B \bar{Ci} + A \bar{B} \bar{Ci} + A B C$$

$$= A \oplus B \oplus Ci$$

$$Co = \bar{A} B Ci + A \bar{B} Ci + A B \bar{Ci} + A B Ci$$

$$= \bar{A} B Ci + A \bar{B} Ci + AB$$

$$= Ci (A \oplus B) + AB$$

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Sheet: /

File: 08-full-adder2.sch

**Title: Full Adder Simplified**

Size: USLetter Date: 2019-09-09

KiCad E.D.A. eeschema 5.1.5+dfsg1-2build2

Rev: 1

Id: 1/1