Table 0.2 Rules of boolean algebra. The two entries in the last row are used frequently and are known as DeMorgan's theorem.

AND Rules	OR Rules
$A \bullet A = A$	$A + A = A$
$A \bullet \overline{A} = 0$	$A + \overline{A} = 1$
$0 \bullet A = 0$	$0 + A = A$
$1 \bullet A = A$	$1 + A = 1$
$A \bullet B = B \bullet A$	$A + B = B + A$
$A(BC) = (AB)C$	$A + (B + C) = (A + B) + C$
$A(B + C) = AB + AC$	$A + BC = (A + B)(A + C)$
$\overline{A} \bullet \overline{B} = \overline{A + B}$	$\overline{A} + \overline{B} = \overline{A \bullet B}$

Example 0.1 Using these rules we can take a number of steps to successively simplify the expression as follows:

$$F = \overline{A}B\overline{C} + \overline{A}BC + A\overline{B}C + ABC$$

$$F = (\overline{A}B\overline{C} + \overline{A}BC) + (A\overline{B}C + ABC)$$

$$F = \overline{A}B(\overline{C} + C) + AC(\overline{B} + B)$$

$$F = \overline{A}B(1) + AC(1)$$

Finally,

$$F = \overline{A}B + AC$$

The final expression is clearly simpler than our initial expression.

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