

Literal: a single bit variable or its inverse

Product term: a single literal by itself or an AND of literals

Sum term: a single literal by itself or an OR of literals

SOP (Sum of Products) Form: an SOP expression is a logical sum (OR) of product terms

POS (Product of Sums) Form: a POS expression is a logical product (AND) of sum terms

Factoring decreases size.

Distributing decreases levels of logic (delay).

DeMorgan's Theorem

- inverting output of an AND gate = inverting the inputs of an OR gate
- Inverting output of an OR gate = inverting the inputs of an AND gate

AND-OR/NAND-NAND

- canonical sums yield
  - AND-OR implementation
  - NAND-NAND implementation

OR-AND/NOR-NOR

- canonical products yield
  - OR-AND implementation
  - NOR-NOR implementation

Covering Combinational

- a midterm corresponds to "covers" 1 combination of a logic function
- As we remove variables from a product term, more combinations are covered
  - The product term will evaluate to true regardless of the removed variables

Karnaugh Maps

- if used correctly, always yield a minimal 2-level implementation