Boolean Algebra and DeMorgan's Theorems 1. Apply DeMorgan's Theorems to each Expression

$$(A, + B)$$

$$(A, + B)$$

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$$(A, + B)$$

$$(A + B) (\overline{C} + D)$$

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

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

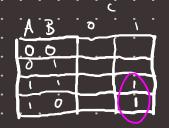
$$\begin{array}{ccc}
AB(c+D) \\
AB(c+D)
\end{array}$$

$$\begin{array}{cccc}
ABC+ABD
\end{array}$$

Logic Simplification using Boolean Algebra Using Boolean algebra, simplify each expression

$$=$$
  $AB(CD+C)$ 

Karnaugh Map and K-Map SOP Minimization
Use a Karnaugh map to simplify each expression to a minimum SOP form



AC.

:B:

ABC + ABC + ABC + ABC

no minimization Possible

Karnaugh Map and K-Map POS Minimization
\*Use a Karnaugh map to simblify each expression to a minimum POS form

$$\begin{array}{c|c}
\hline
x & y & 0 & 1 \\
\hline
0 & 0 & 0 & 0 \\
\hline
0 & 1 & 0 & 0 \\
\hline
1 & 1 & 0 & 0 \\
\hline
1 & 0 & 0 & 0
\end{array}$$

$$\begin{array}{c}
(x + \overline{z})(\overline{x} + z)
\end{array}$$