Zadanie 1

niedziela, 23 marca 2025 16:10

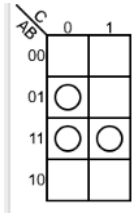
$P_8 = P_{11} = B\bar{C} \cup AB$

$AB = \neg(NAND(A,B)) = NAND(NAND(A,B), NAND(A,B))$

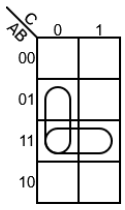
$B\bar{C} = B \cap (NAND(C,C)) = \neg(NAND(B, NAND(C,C))) =$

$= NAND(NAND(B, NAND(C,C)), NAND(B, NAND(C,C)))$

$AB \cup B\bar{C} = NAND(NAND(AB, AB), NAND(B\bar{C}, B\bar{C}))$



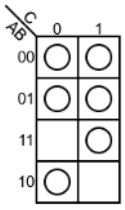
KMap



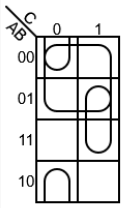
Boolean Algebra

$B\overline{C}+AB$

$P_9 = P_{10} = \bar{A} \cup \bar{B}\bar{C} \cup BC$



KMap



Boolean Algebra

$\overline{A}+\overline{B}\overline{C}+BC$

$\bar{A} = NAND(A,A)$

$\bar{B}\bar{C} = NAND(B,B) \cap NAND(C,C) = \neg(NAND(NAND(B,B), NAND(C,C)))$

$= NAND(NAND(NAND(B,B), NAND(C,C)), NAND(NAND(B,B), NAND(C,C)))$

$BC = NAND(NAND(B,C), NAND(B,C))$

$\bar{A} \cup \bar{B}\bar{C} = NAND(NAND(\bar{A},\bar{A}), NAND(\bar{B}\bar{C}, \bar{B}\bar{C}))$

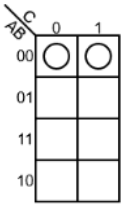
$\bar{A} \cup \bar{B}\bar{C} \cup BC = NAND(NAND(\bar{A} \cup \bar{B}\bar{C}, \bar{A} \cup \bar{B}\bar{C}), NAND(BC, BC))$

$P_{12} = P_{15} = \bar{A}\bar{B}$

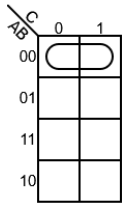
$\bar{A}\bar{B} = NAND(A,A) \cap NAND(B,B) =$

$= \neg(NAND(NAND(A,A), NAND(B,B))) =$

$= NAND(NAND(NAND(A,A), NAND(B,B)), NAND(NAND(A,A), NAND(B,B)))$



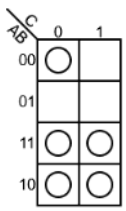
KMap



Boolean Algebra

$\overline{AB}$

$P_{13} = P_{14} = A + \bar{B}\bar{C}$



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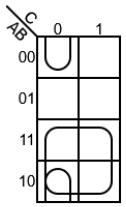

Boolean Algebra

$A+\overline{B}\,\overline{C}$

$\bar{B}\bar{C} = NAND(B,B) \cap NAND(C,C) =$

$= \neg(NAND(B,B) \cap NAND(C,C)) =$

$= NAND(NAND(NAND(B,B), NAND(C,C)), NAND(NAND(B,B), NAND(C,C)))$

$A + \bar{B}\bar{C} = NAND(NAND(A,A), NAND(\bar{B}\bar{C}, \bar{B}\bar{C})) =$

$= NAND(NAND(A,A), NAND(NAND(B,B), NAND(C,C)))$

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const 1

$1 = A \cup \bar{A} = A \cup (NAND(A,A)) = NAND(NAND(A,A), NAND(NAND(A,A), NAND(A,A)))$

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const 0

$0 = A \cap A' = A \cap (NAND(A,A)) = NAND(NAND(A,A), NAND(NAND(A,A), NAND(A,A)))$