

Truth Table	Books Example				sum of products		product of sums
	A	B	C	D	m	\bar{m}	M
0	0	0	0	1	$\bar{A} \bar{B} \bar{C}$		0
7	1	1	1	1	A B C		$\bar{A} + \bar{B} + \bar{C}$
3	0	1	1	0	$\rightarrow \bar{m} = 1 \Rightarrow A \bar{B} \bar{C}$		$\left. \begin{array}{l} + \\ + \\ + \end{array} \right\} \begin{array}{l} A \\ B \\ C \end{array}$
4	1	0	0	0	$\rightarrow \bar{m} = 1 \Rightarrow \bar{A} B C$		$\left. \begin{array}{l} + \\ + \\ + \end{array} \right\} \begin{array}{l} A \\ B \\ C \end{array}$
6	1	1	0	1	A B \bar{C}		$\bar{A} + \bar{B} + C$
5	1	0	1	0	$\bar{m} = 1 \Rightarrow \bar{A} B \bar{C}$		$\left. \begin{array}{l} + \\ + \\ + \end{array} \right\} \begin{array}{l} \bar{A} \\ B \\ \bar{C} \end{array}$
1	0	0	1	0	$\bar{m} = 1 \Rightarrow A \bar{B} \bar{C}$		$\left. \begin{array}{l} + \\ + \\ + \end{array} \right\} \begin{array}{l} A \\ \bar{B} \\ \bar{C} \end{array}$
2	0	1	0	1	$\bar{A} B \bar{C}$		A + \bar{B} + C

$$D = \sum m(0, 2, 6, 7)$$

↑
if any of these is 1 the output is 1

$$\bar{D} = \sum \bar{m}(3, 4, 5, 1)$$

$$M = \prod M(1, 3, 4, 5)$$

$$\bar{M} = \prod \bar{M}(0, 2, 6, 7)$$

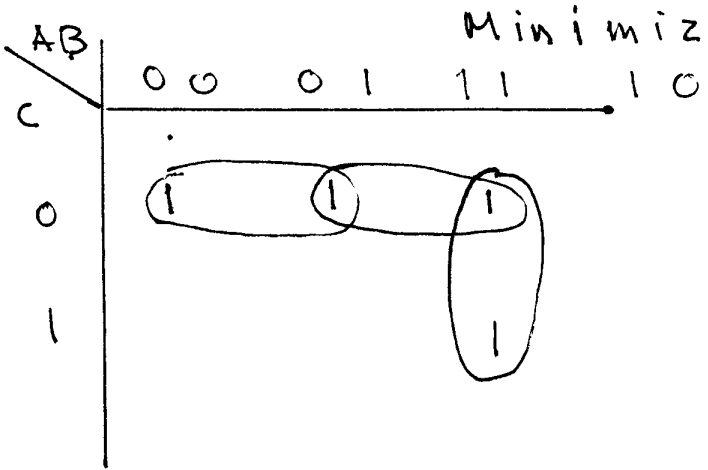
169.229.35.61

$$D = \bar{A} \bar{B} \bar{C} + A B C + A B \bar{C} + \bar{A} B \bar{C}$$

Minimized $D = \bar{A} \bar{C} + A B$

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

②

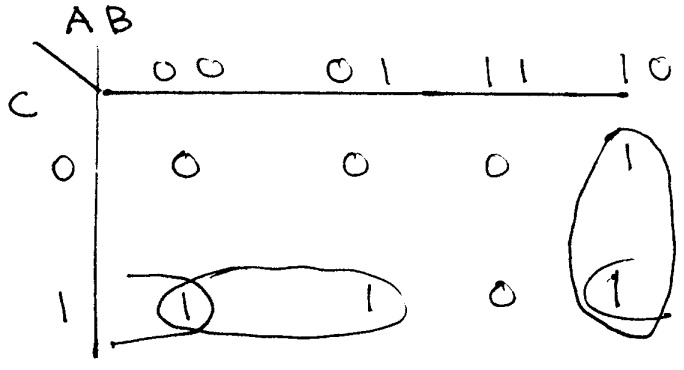


$$D = \bar{A}\bar{C} + AB + BC$$

Do
Not
Need

Minimized sum of products

Product of sums



$$\bar{D} = A\bar{B} + \bar{A}C$$

$$D = \overline{A\bar{B} + \bar{A}C}$$

$$= \overline{A\bar{B}} \overline{\bar{A}C}$$

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