$\overline{B}.\overline{C} + D$

$\overline{A}.B.\overline{C}.\overline{D} + \overline{B}.\overline{C} + D$

A	B	C	D	E	Y	PRODUCT
0	0	0	0	0	1	$\overline{A}.\overline{B}.\overline{C}.\overline{D}.\overline{E}$
0	0	0	0	1	1	$\overline{A}.\overline{B}.\overline{C}.\overline{D}.E$
0	0	0	1	0	1	$\overline{A}.\overline{B}.\overline{C}.D.\overline{E}$
0	0	0	1	1	1	$\overline{A}.\overline{B}.\overline{C}.D.E$
0	0	1	0	0	0	
0	0	1	0	1	0	
0	0	1	1	0	1	$\overline{A}.\overline{B}.C.D.\overline{E}$
0	0	1	1	1	0	
0	1	0	0	0	1	$\overline{A}.B.\overline{C}.\overline{D}.\overline{E}$
0	1	0	0	1	1	$\overline{A}.B.\overline{C}.\overline{D}.E$
0	1	0	1	0	1	$\overline{A}.B.\overline{C}.D.\overline{E}$
0	1	0	1	1	1	$\overline{A}.B.\overline{C}.D.E$
0	1	1	0	0	0	
0	1	1	0	1	0	
0	1	1	1	0	1	$\overline{A}.B.C.D.\overline{E}$
0	1	1	1	1	0	
1	0	0	0	0	1	$A.\overline{B}.\overline{C}.\overline{D}.\overline{E}$
1	0	0	0	1	1	$A.\overline{B}.\overline{C}.\overline{D}.E$
1	0	0	1	0	1	$A.\overline{B}.\overline{C}.D.\overline{E}$
1	0	0	1	1	1	$A.\overline{B}.\overline{C}.D.E$
1	0	1	0	0	0	
1	0	1	0	1	0	
1	0	1	1	0	1	$A.\overline{B}.C.D.\overline{E}$
1	0	1	1	1	0	
1	1	0	0	0	1	$A.B.\overline{C}.\overline{D}.\overline{E}$
1	1	0	0	1	1	$A.B.\overline{C}.\overline{D}.E$
1	1	0	1	0	1	$A.B.\overline{C}.D.\overline{E}$
1	1	0	1	1	1	$A.B.\overline{C}.D.E$
1	1	1	0	0	1	$A.B.C.\overline{D}.\overline{E}$
1	1	1	0	1	1	$A.B.C.\overline{D}.E$
1	1	1	1	0	1	$A.B.C.D.\overline{E}$
1	1	1	1	1	1	$A.B.C.D.E$

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

$= \bar{A}\,\bar{B}\,\bar{C}\cdot\bar{D}\,[\,\bar{E} + E\,]$ (1)

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

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

$= \bar{A}\cdot\bar{B}\cdot\bar{C}\cdot D + [\,\bar{E} + E\,]$ (1)

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

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

$= \bar{A}\cdot\bar{B}\cdot\bar{C}\,[\,\bar{D} + D\,]$ (1)

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

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

$= \bar{A}\cdot\bar{B}\,[\,C\cdot(D\cdot\bar{E}) + \bar{C}\,]$ ($D\cdot\bar{E} = x$)

$[\,\bar{x}\cdot x + \bar{C}\,]$

$[\,D\cdot\bar{E} + \bar{C}\,]$

$= \bar{A}\cdot\bar{B}\,[\,D\cdot\bar{E} + \bar{C}\,]$

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

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

$= \bar{A}\cdot\bar{B}\,[\,\bar{C}\cdot\bar{D} + \bar{C}\cdot D + C\cdot D\cdot\bar{E}\,]$

$[\,\bar{C}\cdot\bar{D} + \bar{E}(\bar{C} + C\cdot D)\,]$

$[\,\bar{C}\cdot\bar{D} + \bar{E}(\bar{C} + D)\,]$

$= \bar{A}\cdot\bar{B}\,[\,\bar{C}\cdot\bar{D} + \bar{E}\cdot\bar{C} + \bar{E}\cdot D\,]$

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

$\Rightarrow \bar{A}\cdot\bar{B}\cdot D\cdot\bar{E} + \bar{A}\cdot\bar{B}\cdot\bar{C} + \bar{A}\cdot\bar{B}\cdot\bar{C}\cdot D + \bar{A}\cdot\bar{B}\cdot\bar{C}\cdot\bar{E} + \bar{A}\cdot\bar{B}\cdot D\cdot\bar{E}$

$= \bar{A}\cdot D\cdot\bar{E}\,(\bar{B} + B)$ (1) $+ \bar{A}\cdot\bar{B}\cdot\bar{C} + \bar{A}\cdot B\cdot\bar{C}\cdot D + \bar{A}\cdot B\cdot\bar{C}\cdot\bar{E}$

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

$= \bar{A}\cdot D\cdot\bar{E} + \bar{A}\bar{C}\,(\bar{B} + BD) + \bar{A}\cdot B\cdot\bar{C}\cdot\bar{E}$

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

$= \bar{A}\cdot D\cdot\bar{E} + \bar{A}\bar{C}\,(\bar{B} + B\bar{E}) + \bar{A}\bar{C}D$

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

$\Rightarrow \bar{A}D\bar{E} + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{C}\bar{E} + \bar{A}\bar{C}D + \bar{A}B\bar{C}\bar{D}E$

$\Rightarrow \bar{A}D\bar{E} + \bar{A}\bar{C}\,(\bar{B} + B(\bar{D}E)) + \bar{A}\bar{C}\bar{E} + \bar{A}\bar{C}D$

$\Rightarrow \bar{A}D\bar{E} + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{C}\bar{D}E + \bar{A}\bar{C}\bar{E} + \bar{A}\bar{C}D$

$\Rightarrow \bar{A}D\bar{E} + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{C}\,(\bar{D}\bar{E} + \bar{E}) + \bar{A}\bar{C}D$

$\Rightarrow \bar{A}D\bar{E} + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{C}\bar{E} + \bar{A}\bar{C}\bar{D} + \bar{A}\bar{C}D$

$\bar{A}\bar{C}\,(\bar{D} + D)$

$\Rightarrow \bar{A}D\bar{E} + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{C}\bar{E} + \bar{A}\bar{C}$

$= \bar{A}D\bar{E} + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{C}\,(\bar{E} + 1)$ (1)

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

$= \bar{A}D\bar{E} + \bar{A}\bar{C}(\cancel{\bar{B}+1})^{1}$

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

$\Rightarrow \bar{A}D\bar{E} + \bar{A}\bar{C}$

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

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

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

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

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

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

$= ABCDE + ABCD\bar{E}$

$\Rightarrow ABCD$

$ABC\bar{D}E + ABC\bar{D}\bar{E} + ABCD$

$ABC(\cancel{\bar{D}}E + D)$

$ABCE + ABCD + ABC\bar{D}\bar{E}$

$ABC(D + \cancel{\bar{D}}\bar{E})$

$ABCE + ABCD + ABC\bar{E}$

$ABC(\cancel{E+\bar{E}})$

$ABC + ABCD$

$= ABC$

$\Rightarrow AB$

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

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

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

$= A\bar{B}\bar{C}D + A\bar{B}CD\bar{E} + AB$

$= A\bar{B}D(\bar{C} + \cancel{C}\bar{E}) + AB$

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

$\Rightarrow A\bar{B}\bar{C}D + A\bar{B}D\bar{E} + AB + \bar{A}\bar{B}CD\bar{E}$

$= A\bar{B}\bar{C}D + \bar{B}D\bar{E}(A + \cancel{\bar{A}}C) + AB$

$= A\bar{B}\bar{C}D + A\bar{B}D\bar{E} + \bar{B}CD\bar{E} + AB$

$= AB\bar{C}\bar{D}\bar{E} + AB\bar{C}\bar{D}E$

$= AB\bar{C}\bar{D}$

$\Rightarrow AB\bar{C}D\bar{E} + AB\bar{C}DE + AB\bar{C}\bar{D}$

$= AB\bar{C}D\bar{E} + AB\bar{C}(\cancel{D}E + \bar{D})$

$= AB\bar{C}D\bar{E} + AB\bar{C}E + AB\bar{C}\bar{D}$

$= AB\bar{C}(D\cancel{\bar{E}} + E) + AB\bar{C}\bar{D}$

$= AB\bar{C}D + AB\bar{C}E + AB\bar{C}\bar{D}$

$= AB\bar{C}(\cancel{D+\bar{D}})^{1}$

$= AB\bar{C} + AB\bar{C}E$

$= AB\bar{C}(\cancel{E+1})^{1}$

$= AB\bar{C}$

$\Rightarrow \bar{A}D\bar{E} + \bar{A}\bar{C} + A\bar{B}\bar{C}D + A\bar{B}D\bar{E} + \bar{B}CD\bar{E} + AB$

$A\bar{B}\bar{C}D + AB + \bar{B}CD\bar{E} + A\bar{B}D\bar{E} + \bar{A}D\bar{E} + \bar{A}\bar{C}$

$D\bar{E}(\cancel{A}\bar{B} + \bar{A})$

$= A\bar{B}\bar{C}D + AB + \bar{B}CD\bar{E} + \bar{B}D\bar{E} + \bar{A}D\bar{E} + \bar{A}\bar{C}$

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

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

$\Rightarrow A\bar{B}\bar{C}D + AB + \bar{B}CD\bar{E} + \bar{B}D\bar{E} + \bar{A}D\bar{E} + \bar{A}\bar{C} + A\bar{B}\bar{C}\bar{D}$

$A\bar{B}\bar{C}(\cancel{D+\bar{D}})^{1}$

$\Rightarrow A\bar{B}\bar{C} + AB + \bar{B}CD\bar{E} + \bar{B}D\bar{E} + \bar{A}D\bar{E} + \bar{A}\bar{C}$

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

$= A\bar{C} + AB + \bar{B}CD\bar{E} + \bar{B}D\bar{E} + \bar{A}D\bar{E} + \bar{A}\bar{C}$

$= \bar{C}(\bar{A} + A) + AB + \bar{B}CD\bar{E} + \bar{B}D\bar{E} + \bar{A}D\bar{E}$ (1)

$= \bar{C} + AB + \bar{B}CD\bar{E} + \bar{B}D\bar{E} + \bar{A}D\bar{E}$

$\bar{B}D\bar{E}(C + 1)$ (1)

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

$\Rightarrow \bar{C} + A\bar{B} + \bar{B}D\bar{E} + \bar{A}D\bar{E} = Q$

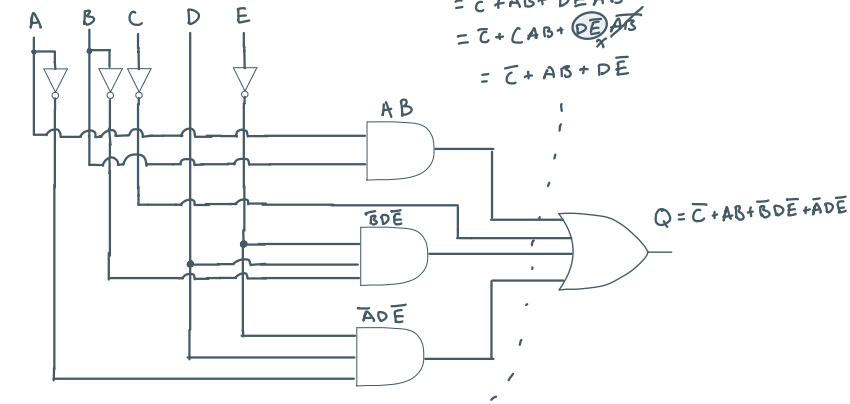
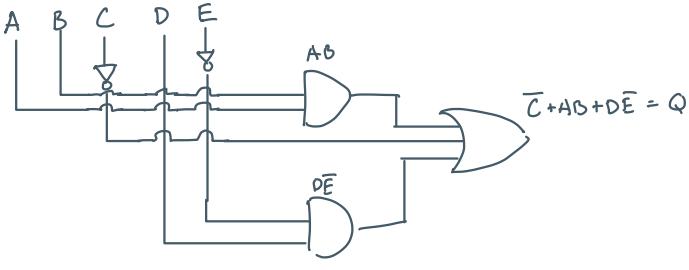
$\Rightarrow \bar{C} + AB + \bar{B}D\bar{E} + \bar{A}D\bar{E}$

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

$= \bar{C} + AB + D\bar{E}\,\overline{AB}$

$= \bar{C} + (AB + D\bar{E})\,\overline{AB}$

$= \bar{C} + AB + D\bar{E}$



$\Rightarrow \bar{C} + AB + D\bar{E}$