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## **SUM of PRODUCTS**

## Map

	$\overline{\mathrm{D.E}}$	$\overline{\mathrm{D}}$ .E	D.E	$D.\overline{E}$
$\overline{A}.\overline{B}.\overline{C}$	X	X	0	1
$\overline{A}.\overline{B}.C$	1	1	X	X
$\overline{A}$ .B.C	X	X	X	X
$\overline{A}$ .B. $\overline{C}$	0	1	X	X
A.B.C	0	0	X	X
$A.\overline{B}.C$	X	X	X	X
A.B.C	X	X	X	X
$A.B.\overline{C}$	X	X	X	X

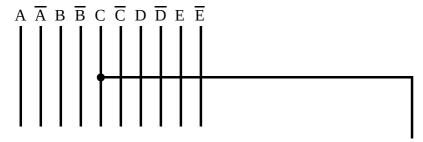
## **Map Layout**

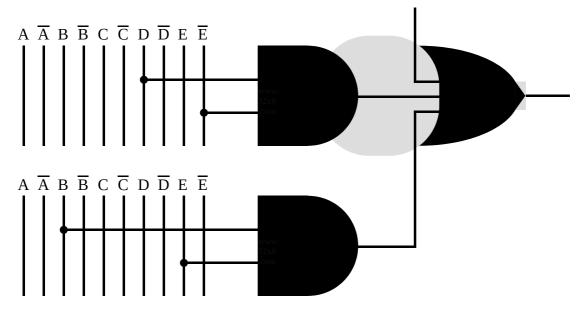
	$\overline{\mathrm{D.E}}$	$\overline{\mathrm{D}}.\mathrm{E}$	D.E	$D.\overline{E}$
$\overline{A}.\overline{B}.\overline{C}$	0	1	3	2
$\overline{A}.\overline{B}.C$	4	5	7	6
$\overline{A}$ .B.C	12	13	15	14
A.B.C	8	9	11	10
A.B.C	16	17	19	18
$A.\overline{B}.C$	20	21	23	22
A.B.C	28	29	31	30
$A.B.\overline{C}$	24	25	27	26

## **Groups**

(4,5,6,7,12,13,14,15,20,21,22,23,28,29,30,31)	С
(2,6,10,14,18,22,26,30)	$D.\overline{E}$
(9,11,13,15,25,27,29,31)	B.E

$$y = C + DE' + BE$$





**Truth Table** 

	A	В	C	D	Ε	Y
0	0	0	0	0	0	X
1	0	0	0	0	1	X
2	0	0	0	1	0	1
3	0	0	0	1	1	0
4	0	0	1	0	0	1
5	0	0	1	0	1	1
6	0	0	1	1	0	X
7	0	0	1	1	1	X
8	0	1	0	0	0	0
9	0	1	0	0	1	1
10	0	1	0	1	0	X
11	0	1	0	1	1	X
12	0	1	1	0	0	X
13	0	1	1	0	1	X
14	0	1	1	1	0	X
15	0	1	1	1	1	X
16	1	0	0	0	0	0
17	1	0	0	0	1	0
18	1	0	0	1	0	X
19	1	0	0	1	1	X
20	1	0	1	0	0	X
21	1	0	1	0	1	X
22	1	0	1	1	0	X
23	1	0	1	1	1	X
24	1	1	0	0	0	X

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25	1	1	0	0	1	X
26	1	1	0	1	0	X
27	1	1	0	1	1	X
28	1	1	1	0	0	X
29	1	1	1	0	1	X
30	1	1	1	1	0	X
31	1	1	1	1	1	X

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