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# **SUM of PRODUCTS**

#### Map

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

## **Map Layout**

	$\overline{D}.\overline{E}.\overline{F}$	$\overline{D}.\overline{E}.F$	$\overline{\mathrm{D}}.\mathrm{E.F}$	$\overline{D}$ .E. $\overline{F}$	$D.\overline{E}.\overline{F}$	D.E.F	D.E.F	$D.E.\overline{F}$
$\overline{A}.\overline{B}.\overline{C}$	0	1	3	2	4	5	7	6
$\overline{A}.\overline{B}.C$	8	9	11	10	12	13	15	14
$\overline{A}$ .B.C	24	25	27	26	28	29	31	30
$\overline{A}.B.\overline{C}$	16	17	19	18	20	21	23	22
$A.\overline{B}.\overline{C}$	32	33	35	34	36	37	39	38
$A.\overline{B}.C$	40	41	43	42	44	45	47	46
A.B.C	56	57	59	58	60	61	63	62
$A.B.\overline{C}$	48	49	51	50	52	53	55	54

### Groups

(8,9,10,11,40,41,42,43)	B.C.D
(9,11,25,27,41,43,57,59)	$C.\overline{D}.F$
(10,11,14,15,42,43,46,47)	B.C.E
(2,3,10,11)	$\overline{A}.\overline{B}.\overline{D}.E$
(2,6,10,14)	$\overline{A}.\overline{B}.E.\overline{F}$
(16,17,48,49)	$B.\overline{C}.\overline{D}.\overline{E}$

3/23/2018, 11:50 PM 1 of 5

(4,5)	$\overline{A}.\overline{B}.\overline{C}.D.\overline{E}$
(28,60)	$B.C.D.\overline{E}.\overline{F}$

y = B'CD' + CD'F + B'CE + A'B'D'E + A'B'EF' + BC'D'E' + A'B'C'DE' + BCDE'F'

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 $A \ \overline{A} \ B \ \overline{B} \ C \ \overline{C} \ D \ \overline{D} \ E \ \overline{E} \ F \ \overline{F}$ 

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 $A \ \overline{A} \ B \ \overline{B} \ C \ \overline{C} \ D \ \overline{D} \ E \ \overline{E} \ F \ \overline{F}$ 

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 $A \ \overline{A} \ B \ \overline{B} \ C \ \overline{C} \ D \ \overline{D} \ E \ \overline{E} \ F \ \overline{F}$ 

#### Addresses

### **Truth Table**

	A	В	C	D	E	F	Y
0	0	0	0	0	0	0	0
1	0	0	0	0	0	1	0
2	0	0	0	0	1	0	1
3	0	0	0	0	1	1	1
4	0	0	0	1	0	0	1
5	0	0	0	1	0	1	1
6	0	0	0	1	1	0	1
7	0	0	0	1	1	1	0
8	0	0	1	0	0	0	1
9	0	0	1	0	0	1	1
10	0	0	1	0	1	0	1
11	0	0	1	0	1	1	1
12	0	0	1	1	0	0	0
13	0	0	1	1	0	1	0
14	0	0	1	1	1	0	1
15	0	0	1	1	1	1	1
16	0	1	0	0	0	0	1

3 of 5 3/23/2018, 11:50 PM

	17	0	1	0	0	0	1	1
	18	0	1	0	0	1	0	0
	19	0	1	0	0	1	1	0
	20	0	1	0	1	0	0	0
	21	0	1	0	1	0	1	0
	22	0	1	0	1	1	0	0
Αċ	23 dress	0	1	0	1	1	1	0
	24	0	1	1	0	0	0	0
	25	0	1	1	0	0	1	1
	26	0	1	1	0	1	0	0
	27	0	1	1	0	1	1	1
	28	0	1	1	1	0	0	1
	29	0	1	1	1	0	1	0
	30	0	1	1	1	1	0	0
	31	0	1	1	1	1	1	0
	32	1	0	0	0	0	0	0
	33	1	0	0	0	0	1	0
	34	1	0	0	0	1	0	0
	35	1	0	0	0	1	1	0
	36	1	0	0	1	0	0	0
	37	1	0	0	1	0	1	0
	38	1	0	0	1	1	0	0
	39	1	0	0	1	1	1	0
	40	1	0	1	0	0	0	X
	41	1	0	1	0	0	1	X
	42	1	0	1	0	1	0	X
	43	1	0	1	0	1	1	X
	44	1	0	1	1	0	0	X
	45	1	0	1	1	0	1	X
	46	1	0	1	1	1	0	X
	47	1	0	1	1	1	1	X
	48	1	1	0	0	0	0	X
	49	1	1	0	0	0	1	X
	50	1	1	0	0	1	0	X
	51	1	1	0	0	1	1	X
	52	1	1	0	1	0	0	X

3/23/2018, 11:50 PM 4 of 5

	53	1	1	0	1	0	1	X
	54	1	1	0	1	1	0	X
	55	1	1	0	1	1	1	X
	56	1	1	1	0	0	0	X
	57	1	1	1	0	0	1	X
	58	1	1	1	0	1	0	X
Ad	59 dress	1 es	1	1	0	1	1	X
	60	1	1	1	1	0	0	X
	61	1	1	1	1	0	1	X
	62	1	1	1	1	1	0	X
	63	1	1	1	1	1	1	X

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5 of 5 3/23/2018, 11:50 PM