## **SUM of PRODUCTS**

## Map

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

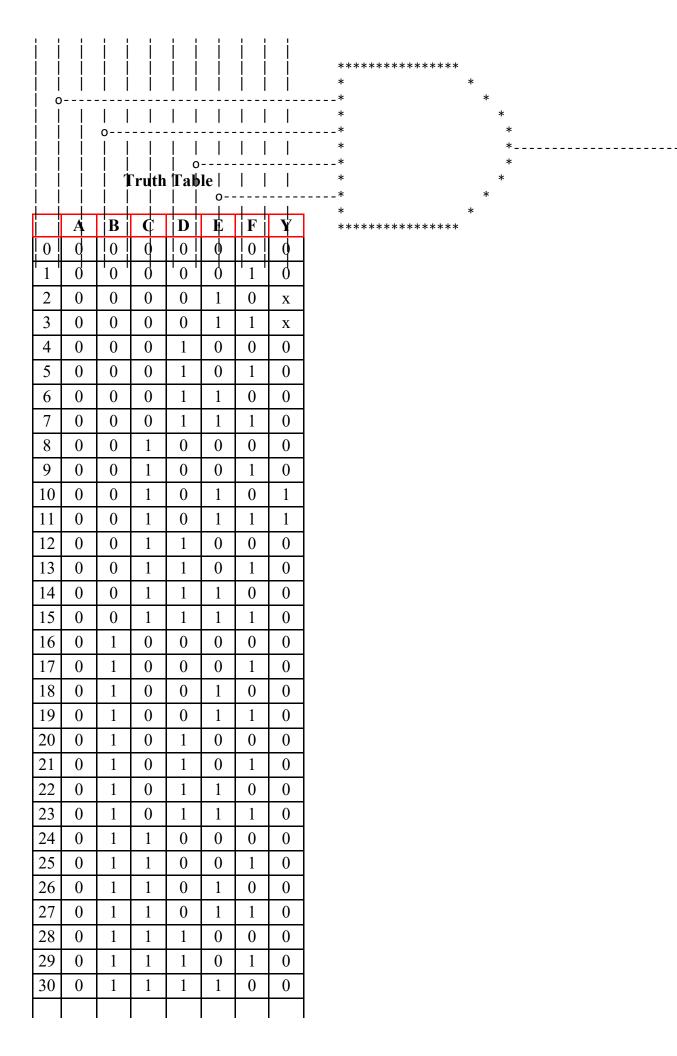
## **Map Layout**

	$\overline{\mathrm{D}}.\overline{\mathrm{E}}.\overline{\mathrm{F}}$	$\overline{\mathrm{D}}.\overline{\mathrm{E}}.\mathrm{F}$	$\overline{\mathrm{D}}$ .E.F	$\overline{\mathrm{D}}.\mathrm{E}.\overline{\mathrm{F}}$	$D.\overline{E}.\overline{F}$	$D.\overline{E}.F$	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.B.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

$$(2,3,10,11)$$
  $\overline{A}.\overline{B}.\overline{D}.E$ 

$$y = \overline{A}.\overline{B}.\overline{D}.E$$



31     0     1     1     1     1     1     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     0     0       40     1     0     1     0     0     0     0       41     1     0     1     0     0     0     0       42     1     0     1     0     0     0     0       43     1     0     1     0     1     0     0       43     1     0     1     1     0     0     <	31	0	1	1	1	1	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     0       41     1     0     1     0     0     0     0       42     1     0     1     0     0     0     0       43     1     0     1     0     0     0     0       45     1     0     1     1     0     0     0       47     1     0     1     1     0     0     <	32	1	0	0	0	0	0	X
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     0       41     1     0     1     0     0     0     0       42     1     0     1     0     1     0     0       43     1     0     1     0     0     0     0       44     1     0     1     1     0     0     0       45     1     0     1     1     0     0     0       47     1     0     1     1     1     0     <	33	1	0	0	0	0	1	0
36     1     0     0     1     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     0       41     1     0     1     0     0     0     0       41     1     0     1     0     0     1     0       42     1     0     1     0     1     0     0       43     1     0     1     0     1     1     0       44     1     0     1     1     0     0     0       45     1     0     1     1     1     0     0       47     1     0     1     1     1     0     0	34	1	0	0	0	1	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     0       41     1     0     1     0     0     1     0       42     1     0     1     0     1     0     0       43     1     0     1     0     1     1     0       44     1     0     1     1     0     0     0       45     1     0     1     1     0     1     0       46     1     0     1     1     1     0     0       47     1     0     1     1     1     0     0       49     1     1     0     0     0     0     <	35	1	0	0	0	1	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     0       41     1     0     1     0     0     1     0       41     1     0     1     0     0     1     0       42     1     0     1     0     1     0     0       43     1     0     1     0     1     1     0       44     1     0     1     1     0     0     0       45     1     0     1     1     0     0     0       45     1     0     1     1     0     0     0       47     1     0     1     1     1     0     0       48     1     1     0     0     1     0     <	36	1	0	0	1	0	0	0
39     1     0     0     1     1     1     0       40     1     0     1     0     0     0     0       41     1     0     1     0     0     0     0       42     1     0     1     0     1     0     0       43     1     0     1     0     1     1     0       44     1     0     1     1     0     0     0       45     1     0     1     1     0     0     0       45     1     0     1     1     0     0     0       45     1     0     1     1     0     0     0       46     1     0     1     1     1     0     0       47     1     0     1     1     1     0     0       50     1     1     0     0     1     0     <	37	1	0	0	1	0	1	0
40     1     0     1     0     0     0       41     1     0     1     0     0     1     0       42     1     0     1     0     1     0     0       43     1     0     1     0     1     1     0       44     1     0     1     1     0     0     0       45     1     0     1     1     0     1     0       46     1     0     1     1     1     0     0       47     1     0     1     1     1     0     0       48     1     1     0     0     0     0     0       50     1     1     0     0     1     0     0       51     1     1     0     0     1     0     0       52     1     1     0     1     0     0     0	38	1	0	0	1	1	0	0
41     1     0     1     0     0     1     0       42     1     0     1     0     1     0     0       43     1     0     1     0     1     1     0       44     1     0     1     1     0     0     0       45     1     0     1     1     0     1     0       46     1     0     1     1     1     0     0       47     1     0     1     1     1     0     0       48     1     1     0     0     0     0     0       49     1     1     0     0     0     0     0       50     1     1     0     0     1     0     0       51     1     1     0     0     1     0     0       52     1     1     0     1     1     0     <	39	1	0	0	1	1	1	0
42     1     0     1     0     1     0     0       43     1     0     1     0     1     1     0       44     1     0     1     1     0     0     0       45     1     0     1     1     0     1     0       46     1     0     1     1     1     0     0       47     1     0     1     1     1     1     0       48     1     1     0     0     0     0     0       49     1     1     0     0     0     0     0       50     1     1     0     0     1     0     0       51     1     1     0     0     1     0     0       51     1     1     0     1     0     0     0       52     1     1     0     1     1     0     <	40	1	0	1	0	0	0	0
43   1   0   1   0   1   1   0     44   1   0   1   1   0   0   0     45   1   0   1   1   0   1   0     46   1   0   1   1   1   0   0     47   1   0   1   1   1   1   0     48   1   1   0   0   0   0   0     49   1   1   0   0   0   0   0     50   1   1   0   0   1   0   0     51   1   1   0   0   1   0   0     51   1   1   0   0   1   0   0     52   1   1   0   1   0   0   0     53   1   1   0   1   1   0   0     54   1   1   0   1   1   0   0 <t< td=""><td>41</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td></t<>	41	1	0	1	0	0	1	0
44   1   0   1   1   0   0   0     45   1   0   1   1   0   1   0     46   1   0   1   1   1   0   0     47   1   0   1   1   1   1   0   0     48   1   1   0   0   0   0   0   0     49   1   1   0   0   0   0   0   0     50   1   1   0   0   1   0   0   0     51   1   1   0   0   1   0   0   0   0     51   1   1   0   1   0	42	1	0	1	0	1	0	0
45   1   0   1   1   0   1   0     46   1   0   1   1   1   0   0     47   1   0   1   1   1   1   0   0     48   1   1   0   0   0   0   0   0     49   1   1   0   0   0   1   0   0     50   1   1   0   0   1   0	43	1	0	1	0	1	1	0
46   1   0   1   1   1   0   0     47   1   0   1   1   1   1   0     48   1   1   0   0   0   0   0     49   1   1   0   0   0   1   0     50   1   1   0   0   1   0   0     51   1   1   0   0   1   1   0     52   1   1   0   1   0   0   0     53   1   1   0   1   0   0   0     54   1   1   0   1   1   0   0     55   1   1   0   1   1   0   0     57   1   1   1   0   0   0   0     58   1   1   1   0   1   0   0     59   1   1   1   1   0   0   0 <t< td=""><td>44</td><td>1</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td></t<>	44	1	0	1	1	0	0	0
47   1   0   1   1   1   1   0     48   1   1   0   0   0   0   0     49   1   1   0   0   0   1   0     50   1   1   0   0   1   0   0     51   1   1   0   0   1   1   0     51   1   1   0   0   1   1   0     52   1   1   0   1   0   0   0     53   1   1   0   1   0   0   0     54   1   1   0   1   1   0   0     55   1   1   0   1   1   0   0     57   1   1   1   0   0   0   0     58   1   1   1   0   1   0   0     59   1   1   1   1   0   0   0 <t< td=""><td>45</td><td>1</td><td>0</td><td>1</td><td>1</td><td>0</td><td>1</td><td>0</td></t<>	45	1	0	1	1	0	1	0
48     1     1     0     0     0     0     0       49     1     1     0     0     0     1     0       50     1     1     0     0     1     0     0       51     1     1     0     0     1     1     0       51     1     1     0     1     0     0     0       52     1     1     0     1     0     0     0       53     1     1     0     1     0     1     0       54     1     1     0     1     1     0     0       55     1     1     0     1     1     1     0       56     1     1     1     0     0     0     0       57     1     1     1     0     1     0     0       59     1     1     1     1     0     0     <	46	1	0	1	1	1	0	0
49   1   1   0   0   0   1   0     50   1   1   0   0   1   0   0     51   1   1   0   0   1   1   0     52   1   1   0   1   0   0   0     53   1   1   0   1   0   1   0     54   1   1   0   1   1   0   0     55   1   1   0   1   1   1   0     56   1   1   1   0   0   0   0     57   1   1   1   0   0   1   0     58   1   1   1   0   1   0   0     59   1   1   1   0   0   0     60   1   1   1   1   0   0     61   1   1   1   1   0   0     62   1   1 </td <td>47</td> <td>1</td> <td>0</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td>	47	1	0	1	1	1	1	0
50     1     1     0     0     1     0     0       51     1     1     0     0     1     1     0       52     1     1     0     1     0     0     0       53     1     1     0     1     0     1     0       54     1     1     0     1     1     0     0       55     1     1     0     1     1     1     0       56     1     1     1     0     0     0     0       57     1     1     1     0     0     1     0       58     1     1     1     0     1     0     0       59     1     1     1     0     0     0       60     1     1     1     1     0     0       61     1     1     1     1     0     0       62	48	1	1	0	0	0	0	0
51     1     1     0     0     1     1     0       52     1     1     0     1     0     0     0       53     1     1     0     1     0     1     0       54     1     1     0     1     1     0     0       55     1     1     0     1     1     1     0       56     1     1     1     0     0     0     0       57     1     1     1     0     0     1     0       58     1     1     1     0     1     0     0       59     1     1     1     0     1     1     0       60     1     1     1     1     0     0     0       61     1     1     1     1     0     0     0       62     1     1     1     1     1     0     <	49	1	1	0	0	0	1	0
52     1     1     0     1     0     0     0       53     1     1     0     1     0     1     0       54     1     1     0     1     1     0     0       55     1     1     0     1     1     1     0       56     1     1     1     0     0     0     0       57     1     1     1     0     0     1     0       58     1     1     1     0     1     0     0       59     1     1     1     0     1     1     0       60     1     1     1     1     0     0     0       61     1     1     1     1     0     0     0       62     1     1     1     1     1     0     0	50	1	1	0	0	1	0	0
53     1     1     0     1     0     1     0       54     1     1     0     1     1     0     0       55     1     1     0     1     1     1     0       56     1     1     1     0     0     0     0       57     1     1     1     0     0     1     0       58     1     1     1     0     1     0     0       59     1     1     1     0     1     1     0       60     1     1     1     1     0     0     0       61     1     1     1     1     0     1     0       62     1     1     1     1     1     0     0	51	1	1	0	0	1	1	0
54     1     1     0     1     1     0     0       55     1     1     0     1     1     1     0       56     1     1     1     0     0     0     0       57     1     1     1     0     0     1     0       58     1     1     1     0     1     0     0       59     1     1     1     0     1     1     0       60     1     1     1     1     0     0     0       61     1     1     1     1     0     1     0       62     1     1     1     1     1     0     0	52	1	1	0	1	0	0	0
55 1 1 0 1 1 1 0   56 1 1 1 0 0 0 0   57 1 1 1 0 0 1 0   58 1 1 1 0 1 0 0   59 1 1 1 0 1 1 0   60 1 1 1 1 0 0 0   61 1 1 1 1 0 0   62 1 1 1 1 1 0 0	53	1	1	0	1	0	1	0
56 1 1 1 0 0 0 0   57 1 1 1 0 0 1 0   58 1 1 1 0 1 0 0   59 1 1 1 0 1 1 0   60 1 1 1 1 0 0 0   61 1 1 1 1 0 0 0   62 1 1 1 1 1 0 0	54	1	1	0	1	1	0	0
57     1     1     1     0     0     1     0       58     1     1     1     0     1     0     0       59     1     1     1     0     1     1     0       60     1     1     1     1     0     0     0       61     1     1     1     1     0     1     0       62     1     1     1     1     1     0     0	55	1	1	0	1	1	1	0
58     1     1     1     0     1     0     0       59     1     1     1     0     1     1     0       60     1     1     1     1     0     0     0       61     1     1     1     1     0     1     0       62     1     1     1     1     1     0     0	56	1	1	1	0	0	0	0
59 1 1 1 0 1 1 0   60 1 1 1 1 0 0 0   61 1 1 1 1 0 1 0   62 1 1 1 1 1 0 0	57	1	1	1	0	0	1	0
60 1 1 1 1 0 0 0   61 1 1 1 1 0 1 0   62 1 1 1 1 1 0 0	58	1	1	1	0	1	0	0
61 1 1 1 1 0 1 0   62 1 1 1 1 1 0 0	59	1	1	1	0	1	1	0
62 1 1 1 1 1 0 0	60	1	1	1	1	0	0	0
	61	1	1	1	1	0	1	0
63 1 1 1 1 1 1 0	62	1	1	1	1	1	0	0
	63	1	1	1	1	1	1	0