

SUM of PRODUCTS

Map

|                             | $\overline{C.D}$ | $\overline{C}.D$ | $C.D$ | $C.\overline{D}$ |
|-----------------------------|------------------|------------------|-------|------------------|
| $\overline{A}.\overline{B}$ | 1                | 1                | 0     | 1                |
| $\overline{A}.B$            | 0                | x                | x     | 0                |
| $A.B$                       | 1                | 1                | 1     | 0                |
| $A.\overline{B}$            | 1                | 1                | 1     | 1                |

Map Layout

|                             | $\overline{C.D}$ | $\overline{C}.D$ | $C.D$ | $C.\overline{D}$ |
|-----------------------------|------------------|------------------|-------|------------------|
| $\overline{A}.\overline{B}$ | 0                | 1                | 3     | 2                |
| $\overline{A}.B$            | 4                | 5                | 7     | 6                |
| $A.B$                       | 12               | 13               | 15    | 14               |
| $A.\overline{B}$            | 8                | 9                | 11    | 10               |

Groups

|              |                             |
|--------------|-----------------------------|
| (0,1,8,9)    | $\overline{B}.\overline{C}$ |
| (0,2,8,10)   | $\overline{B}.D$            |
| (8,9,12,13)  | $A.\overline{C}$            |
| (9,11,13,15) | $A.D$                       |

y = B'C' + B'D' + AC' + AD

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

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

A A̅ B B̅ C C̅ D D̅



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Truth Table

|    | A | B | C | D | Y |
|----|---|---|---|---|---|
| 0  | 0 | 0 | 0 | 0 | 1 |
| 1  | 0 | 0 | 0 | 1 | 1 |
| 2  | 0 | 0 | 1 | 0 | 1 |
| 3  | 0 | 0 | 1 | 1 | 0 |
| 4  | 0 | 1 | 0 | 0 | 0 |
| 5  | 0 | 1 | 0 | 1 | x |
| 6  | 0 | 1 | 1 | 0 | 0 |
| 7  | 0 | 1 | 1 | 1 | x |
| 8  | 1 | 0 | 0 | 0 | 1 |
| 9  | 1 | 0 | 0 | 1 | 1 |
| 10 | 1 | 0 | 1 | 0 | 1 |
| 11 | 1 | 0 | 1 | 1 | 1 |
| 12 | 1 | 1 | 0 | 0 | 1 |
| 13 | 1 | 1 | 0 | 1 | 1 |
| 14 | 1 | 1 | 1 | 0 | 0 |
| 15 | 1 | 1 | 1 | 1 | 1 |