



Tableau de vérité :

| | A | B | C | D | | a | b | c | d | e | f | g |
|---|---|---|---|---|--|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 1 | 0 | 0 | 0 | 1 | | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 1 | 0 | | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| 3 | 0 | 0 | 1 | 1 | | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 4 | 0 | 1 | 0 | 0 | | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| 5 | 0 | 1 | 0 | 1 | | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 6 | 0 | 1 | 1 | 0 | | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 7 | 0 | 1 | 1 | 1 | | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 8 | 1 | 0 | 0 | 0 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 9 | 1 | 0 | 0 | 1 | | 1 | 1 | 1 | 1 | 0 | 1 | 1 |

Tableau de Karnaugh :

pour a :

| AB \ CD | 00 | 01 | 11 | 10 |
|---------|----|----|----|----|
| 00 | 1 | 0 | 1 | 1 |
| 01 | 0 | 1 | 1 | 1 |
| 11 | X | X | X | X |
| 10 | 1 | 1 | X | X |

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

pour b :

| AB \ CD | 00 | 01 | 11 | 10 |
|---------|----|----|----|----|
| 00 | 1 | 1 | 1 | 1 |
| 01 | 1 | 0 | 1 | 0 |
| 11 | X | X | X | X |
| 10 | 1 | 1 | X | X |

$$f(a,b,c,d) = \bar{B} + \bar{C}\bar{D} + CD$$

pour c:

| CD \ AB | 00 | 01 | 11 | 10 |
|---------|----|----|----|----|
| 00 | 1 | 1 | 0 | 0 |
| 01 | 1 | 1 | 1 | 1 |
| 11 | X | X | X | X |
| 10 | 1 | 1 | X | X |

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

pour d:

| CD \ AB | 00 | 01 | 11 | 10 |
|---------|----|----|----|----|
| 00 | 1 | 0 | 1 | 1 |
| 01 | 0 | 1 | 0 | 1 |
| 11 | X | X | X | X |
| 10 | 1 | 1 | X | X |

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

pour e:

| CD \ AB | 00 | 01 | 11 | 10 |
|---------|----|----|----|----|
| 00 | 1 | 0 | 0 | 1 |
| 01 | 0 | 0 | 0 | 1 |
| 11 | X | X | X | X |
| 10 | 1 | 0 | X | X |

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

pour f:

| CD \ AB | 00 | 01 | 11 | 10 |
|---------|----|----|----|----|
| 00 | 1 | 0 | 0 | 0 |
| 01 | 1 | 1 | 0 | 1 |
| 11 | X | X | X | X |
| 10 | 1 | 1 | X | X |

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

map g

| AB \ CD | 00 | 01 | 11 | 10 |
|---------|----|----|----|----|
| 00 | 0 | 0 | 1 | 1 |
| 01 | 1 | 1 | 0 | 1 |
| 11 | 1 | X | X | X |
| 10 | 1 | 1 | X | X |

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