①

$(34\overset{1}{1})_8$ para a base 6

$3 \times 8^2 + 4 \times 8^1 + 1 \times 8^0$

$192 + 32 + 1$

$(225)_{10}$

$225 | 6$
$3 \quad 37 | 6 \qquad = (1013)_6$
$\quad 1 \quad 6 | 6$
$\qquad 0 \quad 1$

$(4531,12)_6$ para a base 10

$(4531)_6$

$4 \times 6^3 + 5 \times 6^2 + 3 \times 6^1 + 1 \times 6^0 + 1 \times 6^{-1} + 2 \times 6^{-2}$

$864 + 180 + 18 + 1 + 0,1666 + 0,055$

$\approx (1.063,222)_{10}$

$(4324)_{10}$ para a base 2

$4324 | 2$
$0 \quad 2.162 | 2$
$\quad 0 \quad 1.081 | 2$
$\qquad 1 \quad 540 | 2$
$\qquad\quad 0 \quad 270 | 2$
$\qquad\qquad 0 \quad 135 | 2$
$= (1000011100100)_2 \qquad 1 \quad 67 | 2$
$\qquad\qquad\qquad 1 \quad 33 | 2$
$\qquad\qquad\qquad\quad 1 \quad 16 | 2$
$\qquad\qquad\qquad\qquad 0 \quad 8 | 2$
$\qquad\qquad\qquad\qquad\quad 0 \quad 4 | 2$
$\qquad\qquad\qquad\qquad\qquad 0 \quad 2 | 2$
$\qquad\qquad\qquad\qquad\qquad\quad 0 \quad 1$

credeal

$(76AC)_{16}$ para a base 2

$16 = 2^4$

$= (0111\ 0110\ 1010\ 1100)_2$

7	6	A	C
7	6	10	12
0111	0110	1010	1100

②

-12 em complemento de 1 em 8 bits

0000 1100 → 12

1000 1100 → -12

1111 0011 → complemento de 1

-145 em complemento de 2, utilizando 8 bits

```
145 | 2
 1    72 | 2
  0     36 | 2
    0     18 | 2
      0     9 | 2
        1     4 | 2
          0     2 | 2
            0     1
```

$(145)_{10} = (1001 0001)_2$

0000100 10001 → 145

1000100 10001 → -145

1111 1011 01110 → complemento de 1

\+ 1

1111 1011 01111 1 → complemento de 2

③

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

$$(A\bar{B}+A\bar{D}+B\bar{B}+B\bar{D}+\bar{C}\bar{B}+\bar{C}\bar{D})(\bar{A}B+\bar{A}C+CB+C)$$

$$(A\bar{D}+A\bar{D}+B\bar{D}+\bar{C}\bar{B}+\bar{C}\bar{D})(\bar{A}B+\bar{A}C+CB+C)$$

$$(A\bar{B}\bar{A}B + A\bar{B}\bar{A}C + A\bar{B}CB + A\bar{B}C + A\bar{D}\bar{A}B + A\bar{D}\bar{A}C + A\bar{D}CB + A\bar{D}C + \cdots$$

$$\cdots + B\bar{D}\bar{A}B + B\bar{D}\bar{A}C + B\bar{D}CB + B\bar{D}C + \bar{C}\bar{B}\bar{A}B + \bar{C}\bar{B}\bar{A}C + \bar{C}\bar{B}CB + \bar{C}\bar{B}C + \cdots$$

$$\cdots + \bar{C}\bar{D}\bar{A}B + \bar{C}\bar{D}\bar{A}C + \bar{C}\bar{D}CB + \bar{C}\bar{D}C)$$

$$A\bar{B}C + A\bar{B}C\bar{D} + AC\bar{D} + \bar{A}B\bar{D} + \bar{A}BC\bar{D} + BC\bar{D} + BC\bar{D} + \bar{A}BC\bar{D}$$

$$A\bar{B}C + AC\bar{D} + \bar{A}B\bar{D} + \bar{A}BC\bar{D} + \bar{A}BC\bar{D} + BC\bar{D} + \bar{A}BC\bar{D}$$

$$ABC\bar{D} + BC\bar{D} + \bar{A}BC\bar{D} + \bar{A}B\bar{C}\bar{D}$$

$$BC\bar{D}(A+1) \qquad \bar{A}B\bar{D}(C+\bar{C})$$

$$A\bar{B}C + AC\bar{D} + \bar{A}B\bar{D} + \qquad BC\bar{D} + \bar{A}B\bar{D}$$

$$A\bar{B}C + AC\bar{D} + \bar{A}B\bar{D} + BC\bar{D}$$

⑤ $f(A,B,C,D,E) = \Pi M(0,1,4,5,10,11,16,17,26,27,29)$

Resposta: $(A+B+D)(B+C+D)(\bar{B}+C+\bar{D})(\bar{A}+\bar{B}+\bar{C}+D+\bar{E})$

①: $(A+B+D)$ ②: $(B+C+D)$ ③: $(\bar{B}+C+\bar{D})$ ④: $(\bar{A}+\bar{B}+\bar{C}+D+\bar{E})$

④

$$F(A,B,C) = A(A + \bar{B}C) + A(\bar{B} + C) + (\bar{B} + BC)$$

$$A(A + \bar{B}C) + A(\bar{B} + C) + (\bar{B} + BC)$$
$$A + A\bar{B}C + A\bar{B} + AC + \bar{B} + BC$$
$$A\bar{B}(C + 1)$$

$$A + A\bar{B} + AC + \bar{B} + BC$$
$$A(C + 1) + \bar{B}(A + 1) + BC$$

$$A + \bar{B} + BC$$

① $f(A,B,C,D) = \overline{\overline{A}\overline{B}C + AB\overline{D} + BCD}$

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

$= AB\overline{C} + \overline{A}\overline{B}D + \overline{B}\overline{C}\overline{D}$

$AB\overline{C}(D+\overline{D}) \quad + \quad \overline{A}\overline{B}D(C+\overline{C}) \quad + \quad \overline{B}\overline{C}\overline{D}(A+\overline{A})$

$\text{min } \sum m(\ldots)$

$(\ldots)+(\quad)+(\quad)$

② $f(A,B,C,D) = \overline{A(\overline{B}+C\overline{D})+\overline{A}BC}$

$\overline{A}(\overline{\overline{B}}+\overline{C}\overline{\overline{D}}) + \overline{A}BC$

$\overline{A}(B+\overline{C}D) + \overline{A}BC$

① $\overline{A}B + \overline{A}\overline{C}D + \overline{A}BC$
②

①=

$\overline{A}B \cdot (CD + \overline{C}\overline{D})$

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

②:

$\overline{A}\overline{C}D(B+\overline{B})$

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

③

$\overline{A}BC(D+\overline{D})$

$\overline{A}BCD + \overline{A}BC\overline{D}$

⇒

$\overline{A}BCD + \overline{A}B\overline{C}\overline{D} + \overline{A}B\overline{C}D + \overline{A}\overline{B}\overline{C}D + \overline{A}BCD + \overline{A}BC\overline{D}$

$\overline{A}B\overline{C}D + \overline{A}B\overline{C}\overline{D} + \overline{A}\overline{B}\overline{C}D + \overline{A}BC\overline{D} + \overline{A}BCD$

①

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

	A	B	C	D	S
0	0	0	0	0	1
1	0	0	0	1	1
2	0	0	1	0	$0 \to A+B+\bar{C}+D$
3	0	0	1	1	1
4	0	1	0	0	$0 \to A+\bar{B}+C+D$
5	0	1	0	1	$0 \to A+\bar{B}+C+\bar{D}$ ②
6	0	1	1	0	$0 \to A+\bar{B}+\bar{C}+D$
7	0	1	1	1	$0 \to A+\bar{B}+\bar{C}+\bar{D}$
8	1	0	0	0	1
9	1	0	0	1	$0 \to \bar{A}+B+C+\bar{D}$ ③
10	1	0	1	0	1
11	1	0	1	1	1
12	1	1	0	0	$0 \to \bar{A}+\bar{B}+C+D$
13	1	1	0	1	$0 \to \bar{A}+\bar{B}+C+\bar{D}$
14	1	1	1	0	$0 \to \bar{A}+\bar{B}+\bar{C}+D$
15	1	1	1	1	$0 \to \bar{A}+\bar{B}+\bar{C}+\bar{D}$

$AB\bar{C}.1 = AB\bar{C}(D+\bar{D})$

① $\boxed{A\bar{B}CD + A\bar{B}C\bar{D}}$

$\bar{A}\bar{B}D(C+\bar{C})$

$\boxed{\bar{A}\bar{B}CD + \bar{A}\bar{B}\bar{C}D}$

②

$\bar{B}C\bar{D}(A+\bar{A})$

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

$\Sigma_m(0,1,3,8,10,11)$

$\therefore \Pi M(2,4,5,6,7,9,12,13,14,15)$

$\Pi M(2,4,5,6,7,9,12,13,14,15)$

$(A+B+\bar{C}+D)(A+\bar{B}+C+D)(A+\bar{B}+C+\bar{D})(A+\bar{B}+\bar{C}+D)(A+\bar{B}+\bar{C}+\bar{D})(\bar{A}+B+C+\bar{D})$

$(\bar{A}+\bar{B}+C+D)(\bar{A}+\bar{B}+C+\bar{D})(\bar{A}+\bar{B}+\bar{C}+D)(\bar{A}+\bar{B}+\bar{C}+\bar{D})$

②

$\sum_m(1,4,5,6,7)$

	A	B	C	D	S	
0	0	0	0	0	0	
1	0	0	0	1	1	$\rightarrow \bar{A}\bar{B}\bar{C}D$ ✓
2	0	0	1	0	0	
3	0	0	1	1	0	
4	0	1	0	0	1	$\rightarrow \bar{A}B\bar{C}\bar{D}$ ✓
5	0	1	0	1	1	$\rightarrow \bar{A}B\bar{C}D$ ✓
6	0	1	1	0	1	$\rightarrow \bar{A}BC\bar{D}$ ✓
7	0	1	1	1	1	$\rightarrow \bar{A}BCD$ ✓
8	1	0	0	0	0	
9	1	0	0	1	0	
10	1	0	1	0	0	
11	1	0	1	1	0	
12	1	1	0	0	0	
13	1	1	0	1	0	
14	1	1	1	0	0	
15	1	1	1	1	0	