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$$f(x, y, z) = \overline{(y \oplus \bar{x}) + (\bar{x} + z)} + \overline{\bar{y} + \bar{z}}$$

1) forma SOP

$$\begin{aligned} f &= \overline{y \cdot x + \bar{y} \bar{x} + x \bar{z}} + y \cdot z \\ &= \overline{y \cdot x} \cdot \overline{\bar{y} \bar{x}} \cdot \overline{x \bar{z}} + y \cdot z \\ * &= (\bar{x} + \bar{y})(x + y)(\bar{x} + z) + y \cdot z \\ &= (\underbrace{\bar{x} \bar{x}}_{=0} + \bar{x} y + \bar{y} x + \underbrace{\bar{y} y}_{=0})(\bar{x} + z) + y \cdot z \\ &= \bar{x} y + \bar{x} y z + x \bar{y} z + y \cdot z \quad (\text{SOP}) \end{aligned}$$

a	b	XOR
0	0	0 M_0
m_1	0	1
m_2	1	0
	1	1
		0 M_3

$$a \oplus b = \bar{a}b + a\bar{b} = (a+b)(\bar{a}+\bar{b})$$

2) SOP canonica

$$\begin{aligned} f &= \bar{x} y \cdot (z + \bar{z}) + \bar{x} y z + x \bar{y} z + (x + \bar{x}) y z = \underbrace{\bar{x} y z}_{m_3} + \underbrace{\bar{x} y \bar{z}}_{m_2} + \underbrace{x \bar{y} z}_{m_5} + \underbrace{x y z}_{m_7} = \sum m(2, 3, 5, 7) \\ &= \bar{x} y \bar{z} + \bar{x} y z + x \bar{y} z + x y z \end{aligned}$$

3) forma POS

inizialmente dall'espressione mancata con *

$$\begin{aligned} f &= (\bar{x} + \bar{y})(x + y)(\bar{x} + z) + y \cdot z = [(\bar{x} + \bar{y})(x + y)(\bar{x} + z) + y] \downarrow [(\bar{x} + \bar{y})(x + y)(\bar{x} + z) + z] \\ &= [(\bar{x} + \bar{y} + y)(x + \bar{x})] \downarrow [(\bar{x} + \bar{y} + z)(x + y + z)(\bar{x} + \underbrace{\bar{z} + z}_{=1})] \\ &= (x + y)(\bar{x} + y + z)(\bar{x} + \bar{y} + z)(x + y + z)(\bar{x} + z) \quad (\text{POS}) \end{aligned}$$

4) POS canonica

$$\begin{aligned} f &= (x + y + z \bar{z})(\bar{x} + y + z)(\bar{x} + \bar{y} + z)(x + y + z)(\bar{x} + z + y \bar{y}) \\ &= (x + y + z)(x + y + \bar{z})(\bar{x} + y + z)(\bar{x} + \bar{y} + z)(x + y + z)(\bar{x} + z + y)(\bar{x} + z + \bar{y}) \\ &= \underbrace{(x + y + z)}_{M_0} \underbrace{(x + y + \bar{z})}_{M_1} \underbrace{(\bar{x} + y + z)}_{M_4} \underbrace{(\bar{x} + \bar{y} + z)}_{M_6} = \prod M(0, 1, 4, 6) \end{aligned}$$

$$f = \text{OR}(m_2, m_3, m_5, m_7) = \text{AND}(M_0, M_1, M_4, M_6)$$

alle formen
canonische

	x	y	z	f	$\bar{x}$	$\bar{y}$	$\bar{z}$	A = $y \oplus \bar{x}$	B = $\bar{x} + z$	$\overline{A+B}$	C = $\bar{y} + \bar{z}$	$\overline{A+B+C}$
M ₀	0	0	0	0	1	1	1	1	0	0	0	0
M ₁	0	0	1	0	1	1	0	1	0	0	0	0
m ₂	0	1	0	1	1	0	1	0	0	1	1	1
m ₃	0	1	1	1	1	0	0	0	0	0	0	0
M ₄	1	0	0	0	0	1	1	0	1	1	0	1
m ₅	1	0	1	1	0	1	0	0	0	0	0	0
M ₆	1	1	0	0	0	0	1	1	1	0	1	1
m ₇	1	1	1	1	0	0	0	1	0	0	1	1

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II

$$f = \overline{y \oplus \bar{x} + \bar{x} + z} + \overline{\bar{y} + \bar{z}}$$