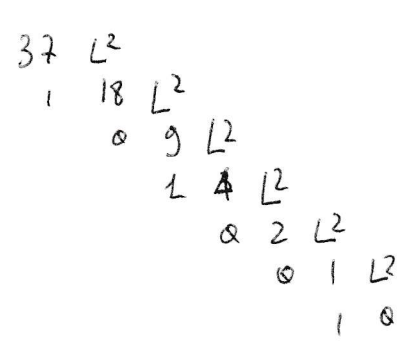
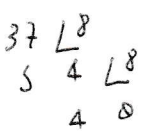
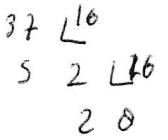
SOLUZIONI

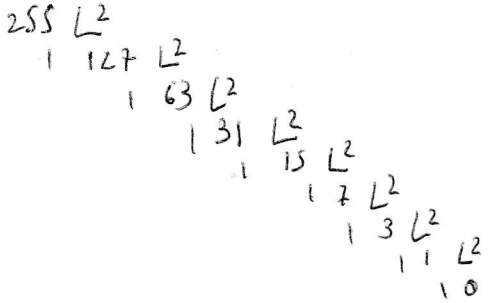
1)

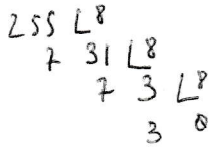


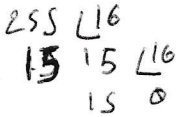




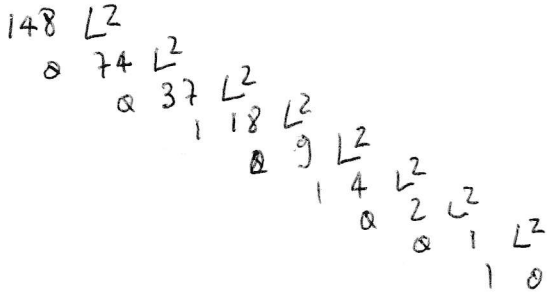
$(37)_{10} = (100101)_2 = (45)_8 = (25)_{16}$

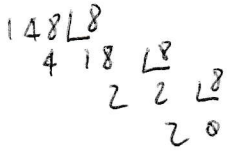


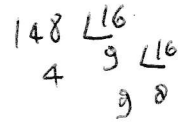




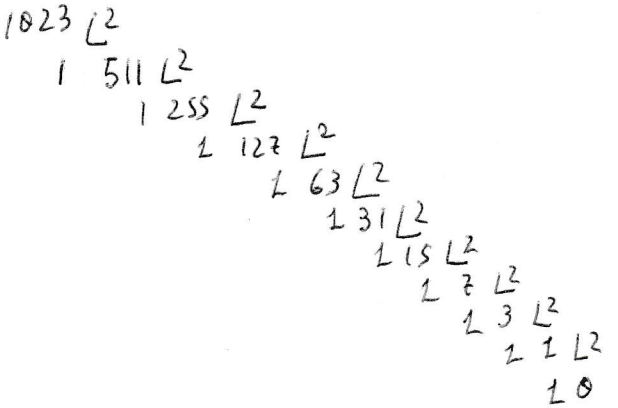
$(255)_{10} = (11111111)_2 = (377)_8 = (FF)_{16}$

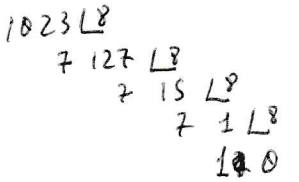


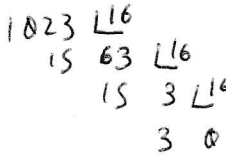




$(148)_{10} = (10010100)_2 = (224)_8 = (94)_{16}$







$(1023)_{10} = (1111111111)_2 = (1777)_8 = (3FF)_{16}$

2) (1001101001)

↳ BASE 10 : $2^0 \cdot 1 + 2^3 \cdot 1 + 2^5 \cdot 1 + 2^6 \cdot 1 + 2^9 \cdot 1 = 1 + 8 + 32 + 64 + 512 = (617)_{10}$

↳ BASE 8 : $001\ 001\ 101\ 001 = (1151)_8$

↳ BASE 16 : $0010\ 0110\ 1001 = (269)_{16}$

3)

BARBA → NOTAZIONE BASE 16

$(DECADE)_{16} = 14 \cdot 16^0 + 13 \cdot 16^1 + 10 \cdot 16^2 + 12 \cdot 16^3 + 14 \cdot 16^4 + 13 \cdot 16^5 = 14'600'926$

CACCIA → NOTAZIONE BASE 16

$(EFFE)_{16} = 14 \cdot 16^0 + 15 \cdot 16^1 + 15 \cdot 16^2 + 14 \cdot 16^3 = 61'438$

4) b^k

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

(ASSORBIMENTO; $B\bar{B} = 0$; ASSORBIMENTO; ASSORBIMENTO)

$\bar{A}\bar{B}CD + \bar{A}B\bar{C}D + ABCD = \bar{A} + \bar{A}B + \bar{A}C + \bar{A}D + \bar{A}\bar{B} + \bar{B}B + \bar{B}C + \bar{B}D + \bar{A}C + BC + C + CD + A$

(DOPPIA NEGAZIONE; $\bar{B}B = 0$)

$= \bar{A} + C + \bar{B}D + ABCD = \bar{A} + C + \bar{B}A + \bar{B}B + \bar{B}C + \bar{B}D + AD + BD + CD + D = \bar{A} + C + \bar{B}A + \bar{B}C + D$

($\bar{B}B = 0$)

2) $AB + AC = A(B + C)$

F G

A	B	C	F	G
0	0	0	0	0
0	0	1	0	0
0	1	0	0	0
0	1	1	0	0
1	0	0	0	0
1	0	1	1	1
1	1	0	1	1
1	1	1	1	1

VERO

SOLUZIONI

- $\bar{A} + \overline{(B\,C)} + BC = 1$ → SEMPLIFICO → $\bar{A} + 1 = 1$ VERO

  ASSIOMA

- $\bar{A}B + \bar{B} + CB = \bar{B}$

  F G

A	B	C	F	G
0	0	0	1	1
0	0	1	1	1
0	1	0	0	0
0	1	1	1	1
1	0	0	1	1
1	0	1	1	1
1	1	0	0	0
1	1	1	1	0

FALSO

- $B + \bar{B}B = 0$ → ASSORBIMENTO → $B = 0$ FALSO

- $A = (ABC) + (A\overline{BC})$ → ASSOCIATIVITÀ → $A(BC) + A(\overline{BC}) = A$ →

  → DISTRIBUTIVITÀ → $A(BC + \overline{BC}) = A$ → $A = A$ VERO

- $\overline{(A+B+C+D)} = \overline{ABCD}$ → DEMORGAN VERO

  F G

A	B	C	D	F	G
0	0	0	0	1	1
0	0	0	1	0	0
0	0	1	0	0	0
0	0	1	1	0	0
0	1	0	0	0	0
0	1	0	1	0	0
0	1	1	0	0	0
0	1	1	1	0	0
1	0	0	0	0	0
1	0	0	1	0	0
1	0	1	0	0	0
1	0	1	1	0	0
1	1	0	0	0	0
1	1	0	1	0	0
1	1	1	0	0	0
1	1	1	1	0	0

3) DNF:

$F = \bar{A}\bar{B}\bar{C} + ABC$ $\qquad G = AB\bar{C}$

CNF: $F = (A+B+\bar{C}) \cdot (A+\bar{B}+C) \cdot (A+\bar{B}+\bar{C}) \cdot (\bar{A}+B+C) \cdot (\bar{A}+B+\bar{C}) \cdot (\bar{A}+\bar{B}$

~~$F = (A+\bar{B}+\bar{C}) \cdot (A+\bar{B}+C) \cdot (\bar{A}+B+C$~~

$G = (A+B+C) \cdot (A+B+\bar{C}) \cdot (A+\bar{B}+C) \cdot (A+\bar{B}+\bar{C}) \cdot (\bar{A}+B+C) \cdot (\bar{A}+B+\bar{C}) \cdot (\bar{A}+\bar{B}+\bar{C}$

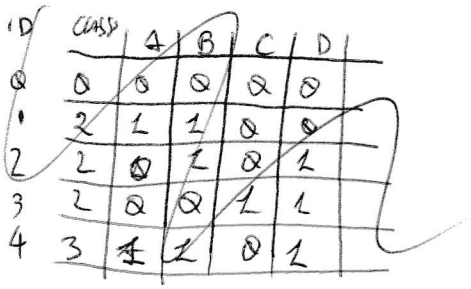
NOR: $F : (A \oplus B \oplus \overset{(C\oplus C)}{C}) \oplus (A \oplus (B \oplus B) \oplus C) \oplus (A \oplus (B \oplus B) \oplus \overset{(C\oplus C)}{C}) \oplus ((A \oplus A) \oplus B \oplus C) \oplus$

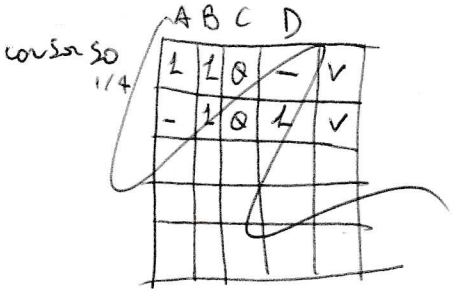
$\oplus ((A \oplus A) \oplus B \oplus (C \oplus C)) \oplus ((A \oplus A) \oplus (B \oplus B) \oplus C)$

$G : (A \oplus B \oplus C) \oplus (A \oplus B \oplus (C \oplus C)) \oplus (A \oplus (B \oplus B) \oplus C) \oplus (A \oplus (B \oplus B) \oplus C) \oplus C)$

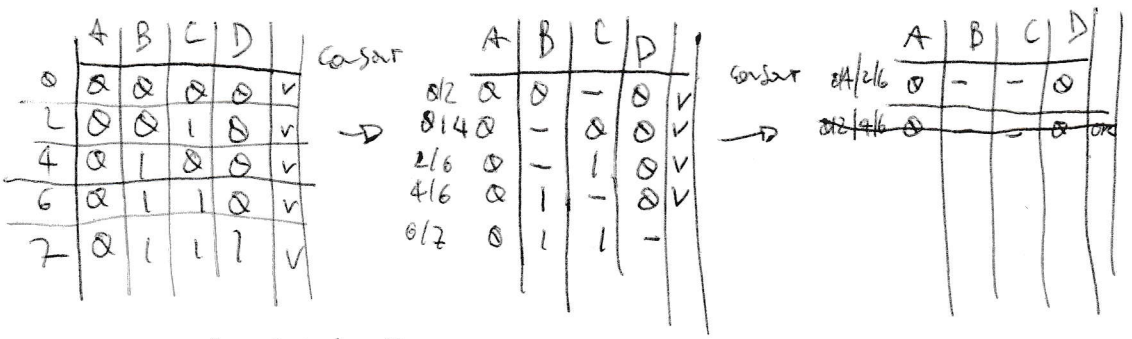
$\oplus ((A \oplus A) \oplus B \oplus C) \oplus ((A \oplus A) + B + (C \oplus C)) \oplus ((A \oplus A) \oplus (B \oplus B) \oplus (C \oplus C))$

4) ~~$\bar{A}\bar{B}\bar{C}\bar{D} + AB\bar{C}\bar{D} + \bar{A}B\bar{C}D + AB\bar{C}D + \bar{A}\bar{B}CD$~~





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



→ IMPL PRIMI: $\bar{A}\bar{C}$, $\bar{A}BC$

TABELLA COPERTURA

	0	2	4	6	7	
$\bar{A}\bar{D}$	X	X	X	X		← osservazione (col 0,2,4)
$\bar{A}BC$				X	X	← osservazione (col 7)

ridondanza (no)

ok

ok

→ $\bar{A}\bar{D} + \bar{A}BC$ (6)

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

0 2 4 6 7

verifica

A	B	C	D	F	G
0	0	0	0	1	1
0	0	0	1	0	0
0	0	1	0	1	1
0	0	1	1	0	0
0	1	0	0	1	1
0	1	0	1	0	0
0	1	1	0	1	1
0	1	1	1	1	1
1	0	0	0	0	0
1	0	0	1	0	0
1	0	1	0	0	0
1	0	1	1	0	0
1	1	0	0	0	0
1	1	0	1	0	0
1	1	1	0	0	0
1	1	1	1	0	0