

1)

37 L^2
 1 18 L^2
 0 9 L^2
 1 4 L^2
 0 2 L^2
 0 1 L^2
 1 0

37 L^8
 5 4 L^8
 4 0

37 L^{16}
 5 2 L^{16}
 2 0

$$(37)_{10} = (1001001)_2 = (45)_8 = (25)_{16}$$

255 L^2
 1 127 L^2
 1 63 L^2
 1 31 L^2
 1 15 L^2
 1 7 L^2
 1 3 L^2
 1 1 L^2
 1 0

255 L^8
 7 31 L^8
 7 3 L^8
 3 0

255 L^{16}
 15 15 L^{16}
 15 0

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

148 L^2
 0 74 L^2
 0 37 L^2
 1 18 L^2
 0 9 L^2
 1 4 L^2
 0 2 L^2
 0 1 L^2
 1 0

148 L^8
 4 18 L^8
 2 2 L^8
 2 0

148 L^{16}
 4 9 L^{16}
 9 0

$$(148)_{10} = (100100100)_2 = (224)_8 = (94)_{16}$$

1023 L^2
 1 511 L^2
 1 255 L^2
 1 127 L^2
 1 63 L^2
 1 31 L^2
 1 15 L^2
 1 7 L^2
 1 3 L^2
 1 1 L^2
 1 0

1023 L^8
 7 127 L^8
 7 15 L^8
 7 1 L^8
 1 0

1023 L^{16}
 15 63 L^{16}
 15 3 L^{16}
 3 0

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

2) (1001101001)

↳ BASE 20 : $2^0 \cdot 1 + 2^3 \cdot 1 + 2^5 \cdot 1 + 2^6 \cdot 1 + 2^9 \cdot 1 = 1 + 8 + 32 + 64 + 512 = (617)_{10}$

↳ BASE 8 : $\underbrace{001}_1 \underbrace{001}_1 \underbrace{101}_2 \underbrace{001}_1 = (1151)_8$

↳ BASE 16 : $\underbrace{0010}_2 \underbrace{0110}_6 \underbrace{1001}_9 = (269)_{16}$

3)

BARBA \rightarrow NO NOTAZIONE BASE 16

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

CACCIA \rightarrow NO NOTAZIONE BASE 16

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

4) b^k

1) $AB + A\bar{B}C = A + \underbrace{A\bar{B}}_{\text{ASSORBIMENTO}} + AC + AB + \underbrace{B\bar{B}}_{\text{ASSORBIMENTO}} + BC = A + AC + AB + BC = A + AB + BC = A + BC$

$\bar{A}\bar{B}CD + \bar{A}B\bar{C}D + ABCD = \bar{A} + \bar{A}B + \bar{A}C + \bar{A}D + \underbrace{\bar{A}\bar{B} + \bar{A}B}_{\text{DOPPIANEGAZIONE}} + \underbrace{\bar{B}B}_{\text{ASSORBIMENTO}} + \underbrace{\bar{B}C + \bar{B}D}_{\text{ASSORBIMENTO}} + \underbrace{\bar{A}C + BC}_{\text{ASSORBIMENTO}} + \underbrace{CD + CD}_{\text{ASSORBIMENTO}} + A$
 $= \bar{A} + C + \bar{B}D + ABCD = \bar{A} + C + \bar{B}A + \bar{B}B + \bar{B}C + \bar{B}D + AD + BD + CD + D = \bar{A} + C + \bar{B}A + \bar{B}C + D$

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

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~~ VERO

SOLUZIONI

(2)

• $\bar{A} + (\overline{BC}) + BC = 1 \rightarrow$ SEMPLIFICAZIONE $\rightarrow \bar{A} + 1 = 1$ ~~FALSO~~ 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	0
1	0	0	1	1
1	0	1	1	1
1	1	0	0	0
1	1	1	1	0

FALSO

• ~~B~~ $B + \bar{B}B = 0 \rightarrow$ ASSORBIMENTO $\rightarrow B = 0$

FALSO

• $A = (ABC) + (A\overline{BC}) \rightarrow$ ASSOCIATIVITA' $\rightarrow A(BC) + A(\overline{BC}) = A \rightarrow$
 \rightarrow DISTRIBUTIVITA' $\rightarrow A(\overline{BC + \overline{BC}}) = A \rightarrow A = A$ VERO

• $\overline{(A+B+C+D)} = \bar{A}\bar{B}\bar{C}\bar{D} \rightarrow$ DEMORGAN

F G

VERO

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:

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

$$G = AB\bar{C}$$

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

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

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

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

$$G: (A \oplus B \oplus C) \oplus (A \oplus B \oplus (C \oplus C)) \oplus (A \oplus (B \oplus B) \oplus C) \oplus (A \oplus (B \oplus B) \oplus \bar{C}) \oplus C \oplus ((A \oplus A) \oplus B \oplus C) \oplus ((A \oplus A) \oplus B \oplus (C \oplus C)) \oplus ((A \oplus A) \oplus (B \oplus B) \oplus (C \oplus C))$$

4)

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

CLASS	A	B	C	D
0	0	0	0	0
2	1	1	0	0
2	0	1	0	1
3	0	1	0	0
1	1	1	0	0

CLASS	A	B	C	D
0	0	0	0	0
1	2	1	1	0
2	2	0	1	0
3	2	0	0	1
4	3	1	0	1

CLASS	A	B	C	D
0	1	1	0	-
1	-	1	0	1
2	-	1	0	1
3	-	1	0	1
4	-	1	0	1

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

CLASS	A	B	C	D
0	0	0	0	0
2	0	0	1	0
4	0	1	0	0
6	0	1	1	0
7	0	1	1	1

consort

→

CLASS	A	B	C	D
0/2	0	0	-	0
0/4	0	-	0	0
2/6	0	-	1	0
4/6	0	1	-	0
0/2	0	1	1	-

consort

→

CLASS	A	B	C	D
0/2/6	0	-	-	0
0/2/4/6	0	-	-	0

→ MPL Prim: $\bar{A}\bar{B}$, ABC

TABELA CARACTERÍSTICA

$\bar{A} \bar{D}$	0	2	4	6	7	observações (col 0, 2, 4)	posição (no)
$\bar{A} BC$	X	X	X	X	X	observações (col 7)	OK

$\rightarrow \bar{A} \bar{D} + \bar{A} BC$ (6)

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

0 2 4 6 7

verificação

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