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$B1_{16\ CA2} = 10110001_{2CA}$

$3F_{16\ CA_2}$

$B1_{16} = 1011\ 0001_2 = 10110001_2$

$B = 11_{10}$

11	1
5	1
2	0
1	1
0	

$11_{10} = 1011$

1	1
0	

$1_{10} = 1_2$

$3F_{16\,ca_2} = \underline{0011}\ \underline{1111}_{2\,ca_2}$

3	1
1	1
0	

$3_{10} = 11 = 0011_2$

$F = 15_{10}$

15	1
7	1
3	1
1	1
0	

$15_{10} = F_{16} = 1111_2$

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1\ 1\ 1\ 1} \\ B1 \rightarrow 10110001 + \\ 3F \rightarrow 00111111 = \\ \hline 11110000 \end{array}$$

CA2

$$\begin{array}{r} 1 \\ 1 + \\ 1 = \\ \hline 10 \end{array} \qquad \begin{array}{r} 1 \\ 1 + \\ 1 = \\ \hline 11 \end{array}$$

$$\begin{array}{r} 1\ldots\ldots + \\ 1\ldots\ldots = \\ \hline 0\ldots\ldots \end{array}$$

$$\begin{array}{r} 1\ldots\ldots \\ 1\ldots\ldots \\ \hline 0\ldots\ldots \end{array} \qquad \begin{array}{r} 0\ldots\ldots \\ 0\ldots\ldots \\ \hline 1\ldots\ldots \end{array}$$

7 6 5 4 3 2 1 0

10110001

$-2^7 + 0\cdot 2^6 + 1\cdot 2^5 + \ldots$

$B1_{16} \rightarrow -_{10} = -2^7 + 2^5 + 2^4 + 2^0 = -79_{10}$

$3F \rightarrow 2^5 + 2^4 + 2^3 + 2^2 + 2^1 + 2^0 = 63_{10}$

$11110000 = -2^7 + 2^6 + 2^5 + 2^4 = -16_{10}$

$$\begin{array}{r} -79 + \\ 63 = \\ \hline -16 \end{array}$$

1]

$AA_{16} = 1010\ 1010_{2C_2} = -2^7 + 2^5 + 2^3 + 2^1 = -86_{10}$

CA_2

$F3_{16} = 1111\ 0011_{2C_2} = -2^7 + 2^6 + 2^5 + 2^4 + 2^1 + 2^0 = -13_{10}$

$7F_{16} = 0111\ 1111_{2C_2} = 2^6 + 2^5 + 2^4 + 2^3 + 2^2 + 2^1 + 2^0 = 127_{10}$

A → 10

10	0
5	1
2	0
1	1
0	

$10 = 1010_2$

15	1
7	1
3	1
1	1
0	

$15 = 1111$

3	1
1	1
0	

$= 3 = 11$

7	1
3	1
1	1
0	

$7 = 111$

RISPOSTA: F3

2 $-8_{10} =$ $2CA_2$ **4 BIT**

8	0
4	0
2	0
1	1
0	

$8_{10} = 1000_2 \xrightarrow{INV} 0111 \xrightarrow{+1}$

$$\begin{array}{r} {\scriptstyle 1\,1\,1} \\ 0111 \\ +\quad 1 \\ \hline 1000 \end{array}$$

$8_{10} = 1000_2 = 1000_{2CA}$ NO OVERFLOW

$$-2^{N-1} \leq x \leq 2^{N-1} - 1$$

$$-2^3 \leq x \leq 2^3 - 1 \Rightarrow -8 \leq x \leq +7$$

$-8_{10} = 1000_{2CA_2} = 8_{16\,CA_2}$

$1000_2 = 8_{16}$

$3\ 2\ 1\ 0$

2^3

4) 6 BIT

BIN. PURO = ~~000001 = 1_{10}~~ (MIN)

000000 = 0_{10} =

$$2^N - 1$$

MAX

$= 111111 = 2^5 + 2^4 + 2^3 + 2^2 + 2^1 + 2^0 = 63_{10}$

CA_2 = 

MIN

$= 100000 = -2^5 = -32_{10}$

$$-2^{N-1} \leq x \leq 2^{N-1} - 1$$

MAX

$= 011111 = 2^4 + 2^3 + 2^2 + 2^1 + 2^0 = 31$

$$-2^5 \leq x \leq 2^5 - 1$$

$$-32 \leq x \leq 31$$

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6 BIT$_{CA_2}$ → B10 E B8

$MIN_{CA} = 100000 = -32_{10} = 40_8$

100 (bit positions 2 1 0) → $1 \cdot 2^2$ → $4_{10} = 4_8$

000 (bit positions 2 1 0) $= 0_{10}$ → 0_8

$MAX_{CA} = 011111 = +31_{10} = 37_8$

011 (bit positions 2 1 0) → 3

111 (bit positions 2 1 0) → 7

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6 BIT

$+60_{10} \rightarrow \_\_\_\__{CA2} = \_\_\_\__2$

60	0
30	0
15	1
7	1
3	1
1	1
0	

$60_{10} = 111100_2 = 0111100_{CA2}$ 7 BIT

$-2^5 \leq x \leq 2^5 - 1$

$-32 \leq x \leq 31$

-60 È GIÀ IN CA2? NO 2 → INV → +1

0111100!

1000011 →

$$\begin{array}{r} 1000011\ + \\ 1\ = \\ \hline 1000100 \end{array}$$

$1000100_{CA2} \rightarrow -60$

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5 4 3 2 1 0

$$001101_{2C_2} = 2^3 + 2^2 + 2^0 = 13_{10}$$

$$\underline{1}\,\underline{1}\,00\,1\,1_{2C_2} = -2^5 + 2^4 + 2^1 + 2^0 = -13_{10}$$

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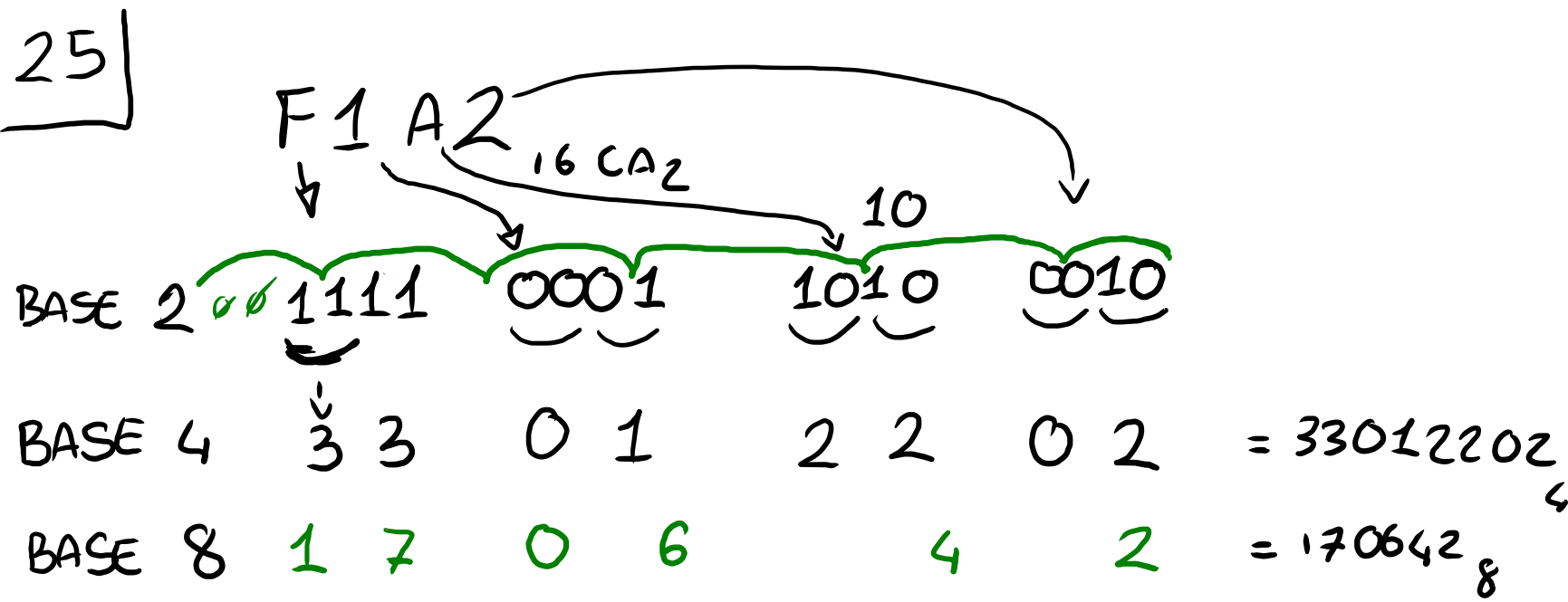
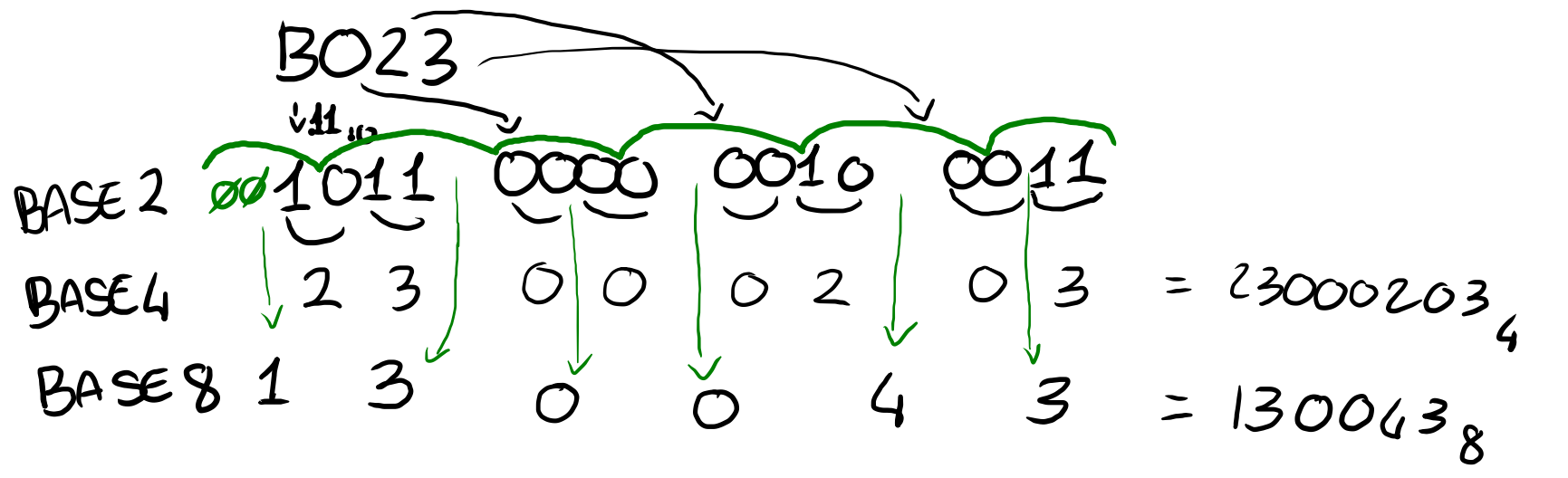

F1A2
16 CA2
10
BASE 2 00 1111 0001 1010 0010
BASE 4 3 3 0 1 2 2 0 2 = 33012202 4
BASE 8 1 7 0 6 4 2 = 170642 8


B023
11 12
BASE 2 00 1011 0000 0010 0011
BASE 4 2 3 0 0 0 2 0 3 = 230000203 4
BASE 8 1 3 0 0 4 3 = 130043 8