Guía de laboratorio 2

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1) Convierta los siguientes números base 8 en base 10

a) $(15364)_8 = (6,900)_{10}$

$15364 = (1)8^4 + (5)8^3 + (3)8^2 + (6)8^1 + (4)8^0 \Rightarrow \boxed{6900}_{10}$

4 3 2 1 0

b) $(3721)_8 = (2001)_{10}$

3 2 1 0

$= (3)8^3 + (7)8^2 + (2)8^1 + (1)8^0 \Rightarrow \boxed{2001}_{10}$

c) $(3744)_8 = (2020)_{10}$

3 2 1 0

$= (3)8^3 + (7)8^2 + (4)8^1 + (4)8^0 \Rightarrow \boxed{2020}_{10}$

d) $(151)_8 = (105)_{10}$

2 1 0

$= (1)8^2 + (5)8^1 + (1)8^0 \Rightarrow \boxed{105}_{10}$

e) $(1510)_8 = (840)_{10}$

3 2 1 0

$= (1)8^3 + (5)8^2 + (1)8^1 + 0(8^0) = \boxed{840}_{10}$

2) Convierta los siguientes números base 2 (Binario) en Base 10 (decimal)

a) $(1001001)_2 = (73)_{10}$

6 5 4 3 2 1 0

$= 2^6 + 2^3 + 2^0 = 73$

b) $(10100)_2 = (20)_{10}$

4 3 2 1 0

$= 2^4 + 2^2 = 20$

c) $(1100101)_2 = (101)_{10}$

6 5 4 3 2 1 0

$= 2^6 + 2^5 + 2^2 + 2^0 = 101$

d) $(100110)_2 = (38)_{10}$

5 4 3 2 1 0

$= 2^5 + 2^2 + 2^1 = 38$

e) $(1010)_2 = (10)_{10}$

3 2 1 0

$= 2^3 + 2^1 = 10$

3) Convierta los siguientes números Base 16 (Hexadecimal) en base 10 (decimal)

a) $(24)_{16} = (36)_{10}$

$= (2 \cdot 16^1) + (4 \cdot 16^0) = 36$

b) $(86)_{16} = (134)_{10}$

$= (8 \cdot 16^1) + (6 \cdot 16^0) = 134$

c) $(1F8)_{16} = (504)_{10}$

$= (1 \cdot 16^2) + (15 \cdot 16^1) + (8 \cdot 16^0) = 504$

d) $(1CF)_{16} = (463)_{10}$

$= (1 \cdot 16^2) + (12 \cdot 16^1) + (15 \cdot 16^0) = 463$

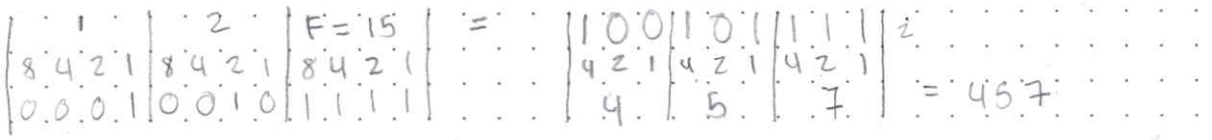
e) $(17E)_{16} = (382)_{10}$

$= (1 \cdot 16^2) + (7 \cdot 16^1) + (14 \cdot 16^0) = 382$

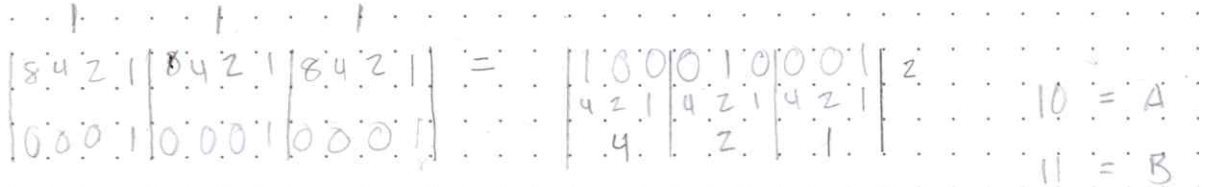
10 = A
11 = B
12 = C
13 = D
14 = E
15 = F

4) Convierta los siguientes numeros Base 16 en Base 8

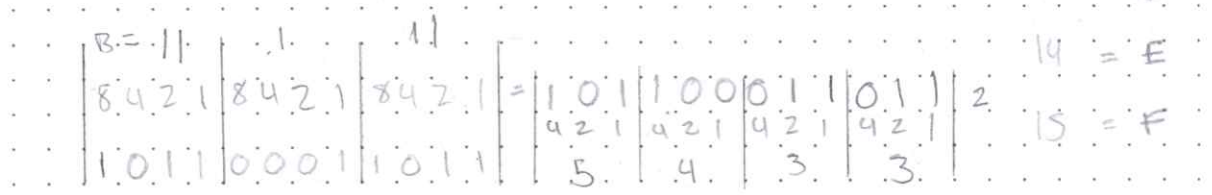
a) $(1\,2\,F)_{16} = (457)_8$



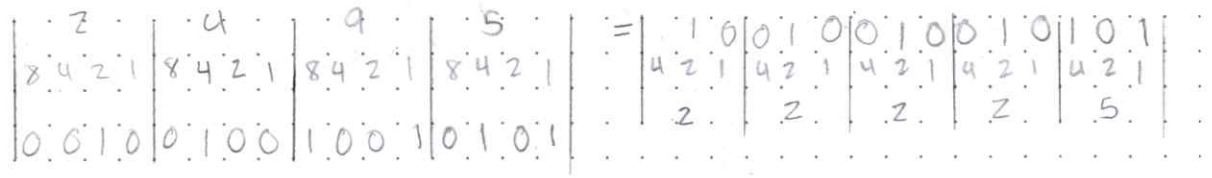
b) $(1\,1\,1)_{16} = (421)_8$



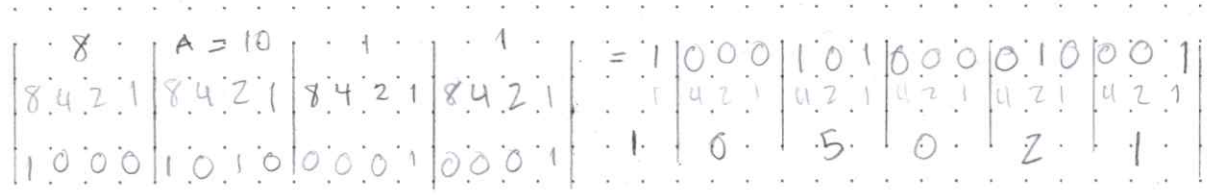
c) $(B\,1\,B)_{16} = (5433)_8$



d) $(2\,4\,9\,5)_{16} = (22225)_8$

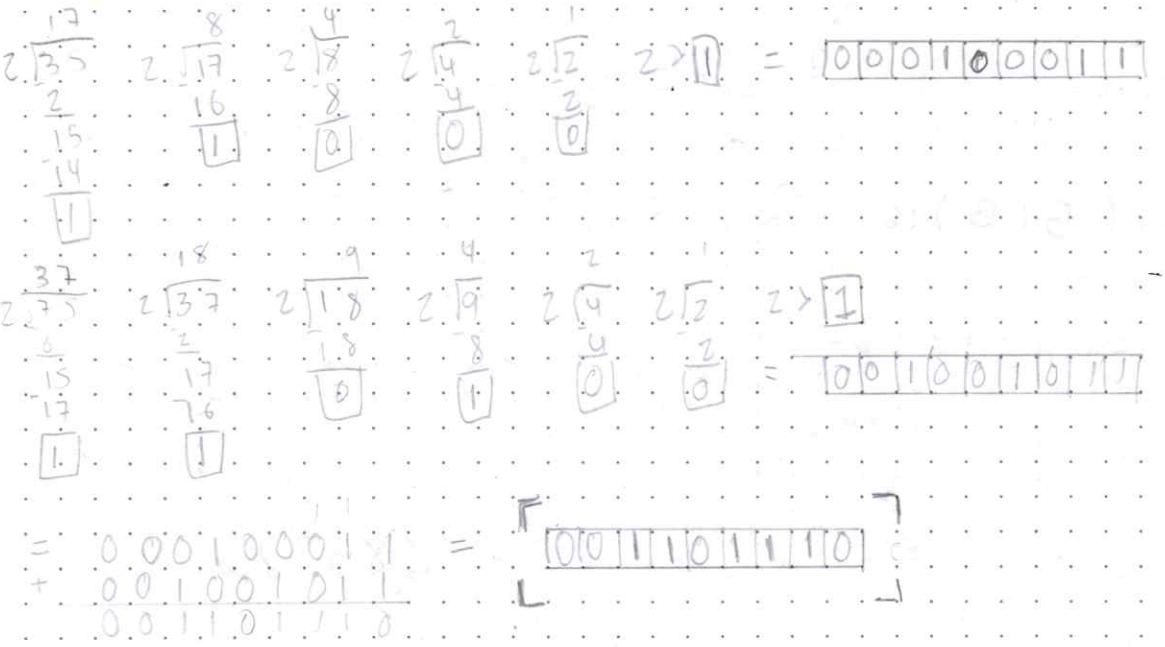


e) $(8\,A\,1\,1)_{16} = (105021)_8$

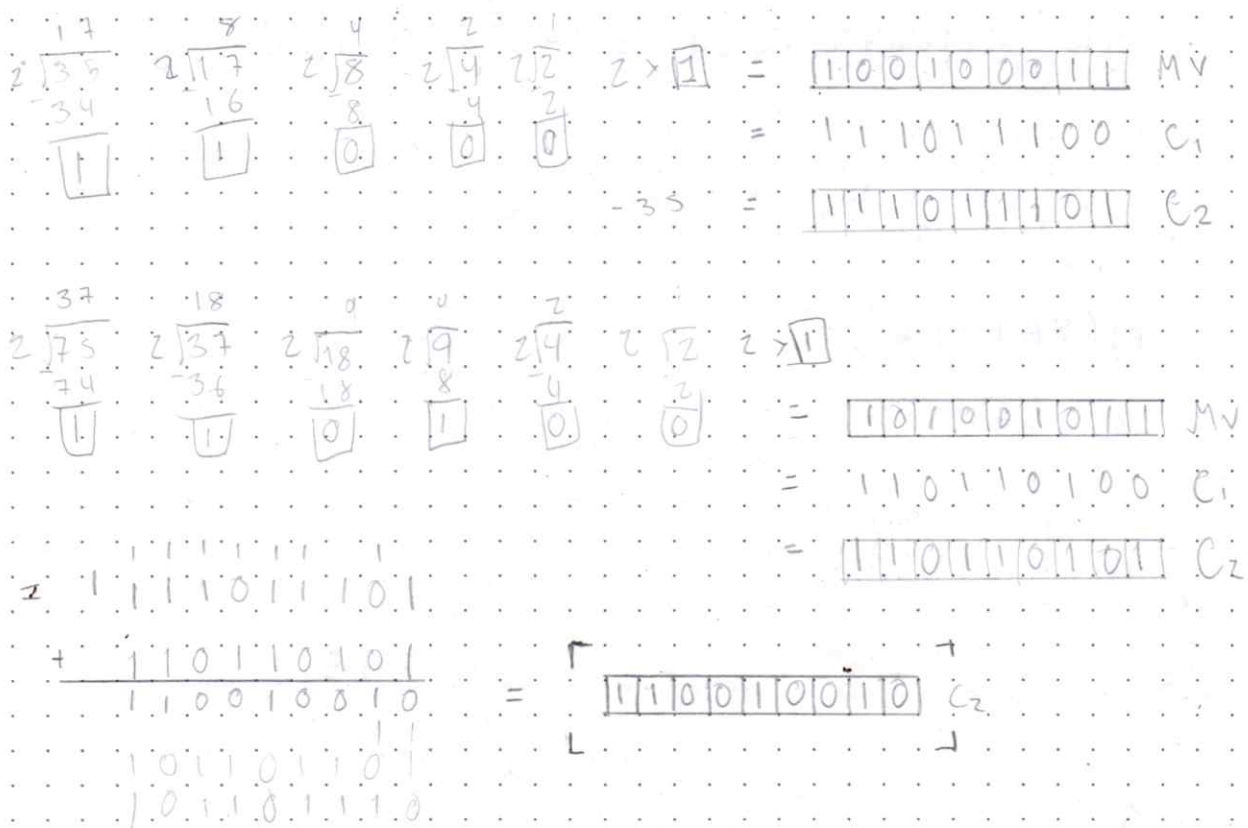


5) Efectuar las siguientes sumas, tal como se realizan en el ALU

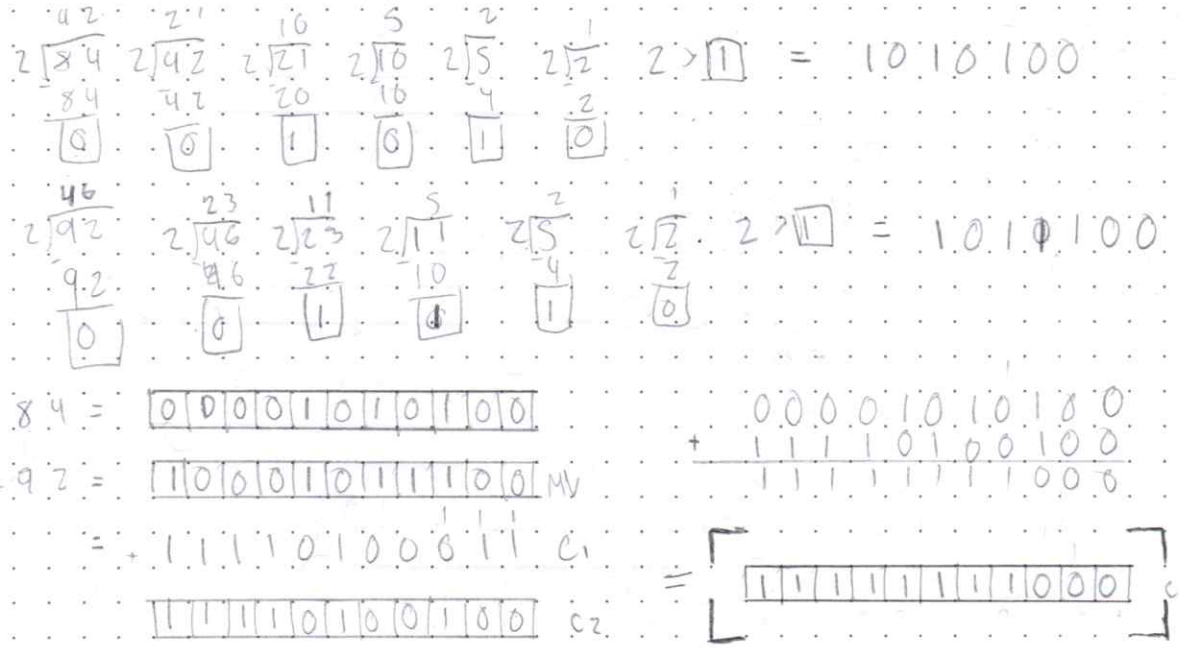
a) $(35)_{10} + (75)_{10}$ con 9 bits



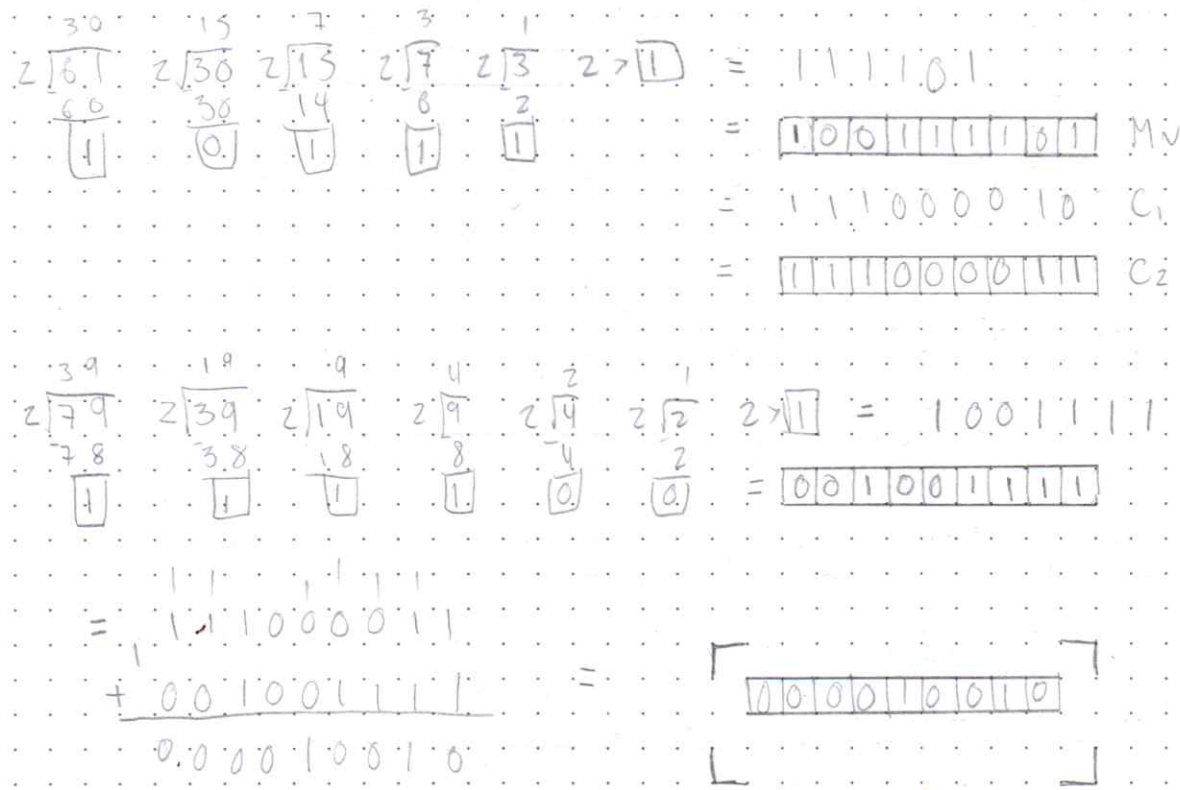
b) $(-35)_{10} + (-75)$ con 9 bits



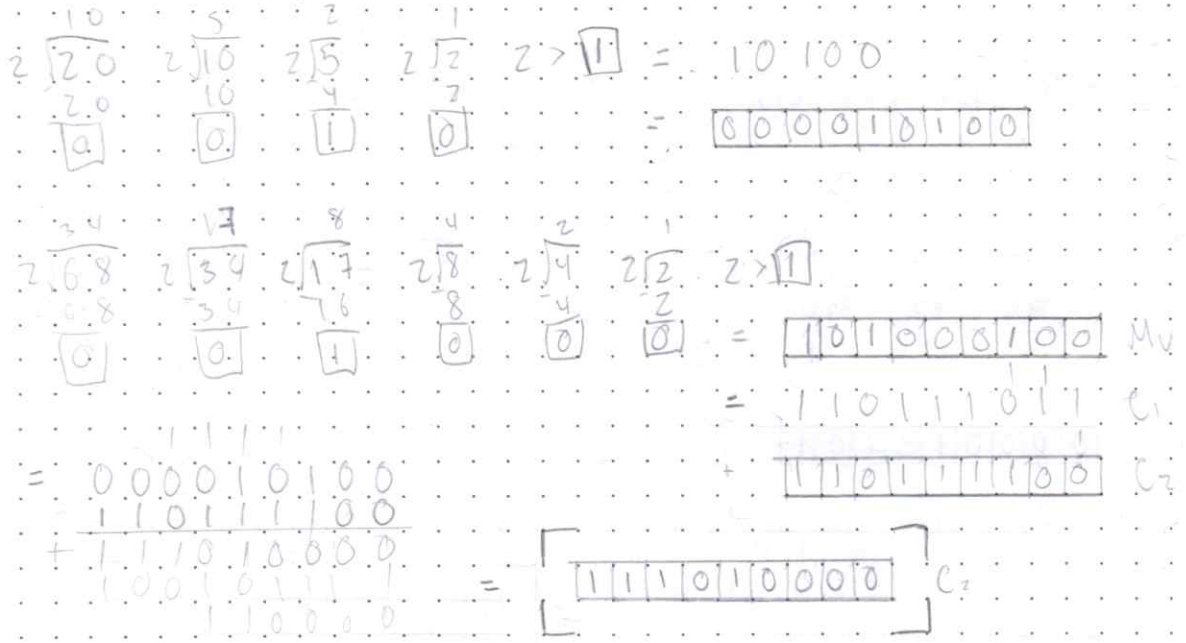
c) $(84)_{10} + (-92)_{10}$ con 11 bits



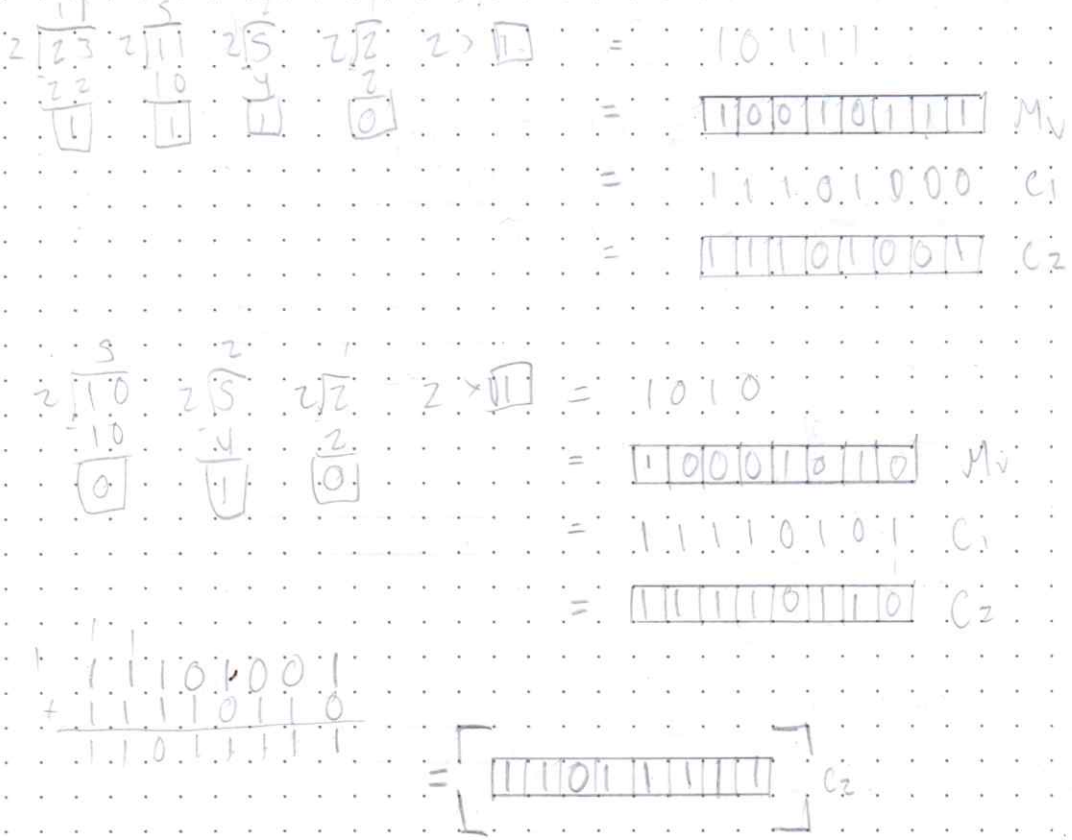
d) $(-61)_{10} + (79)_{10}$ con 9 bits



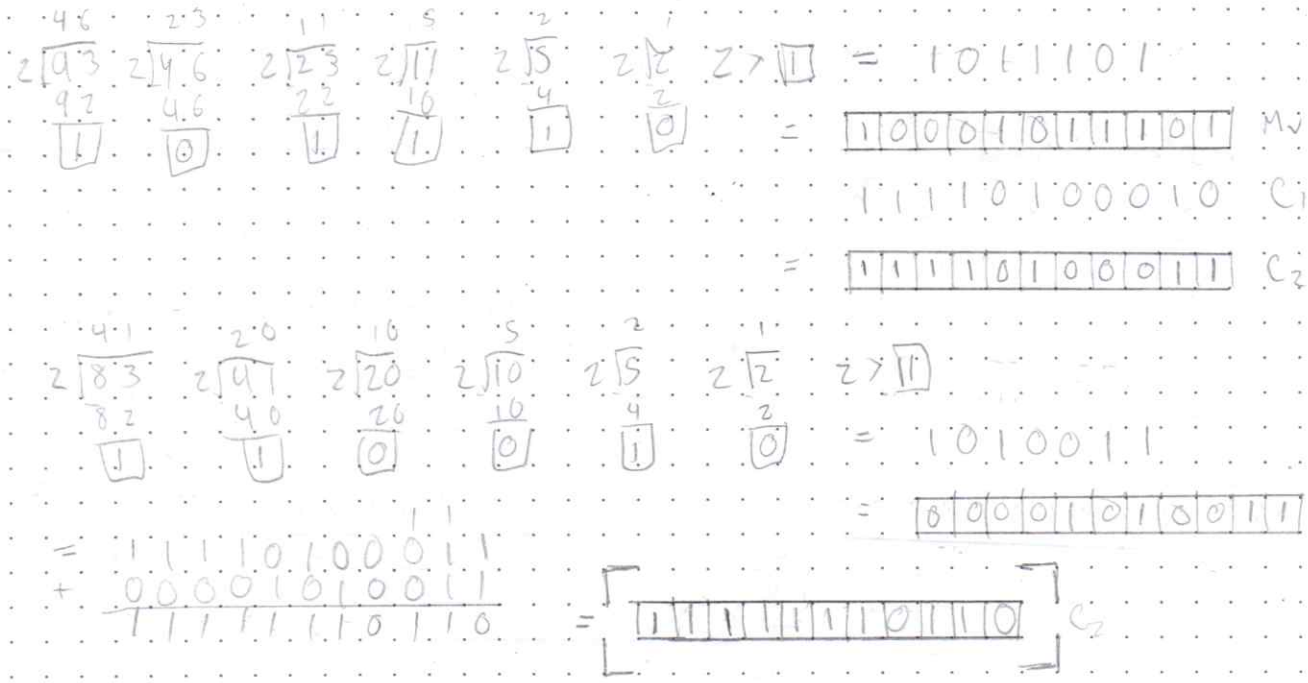
e) $(20)_{10} + (-68)_{10}$ con 9 bits



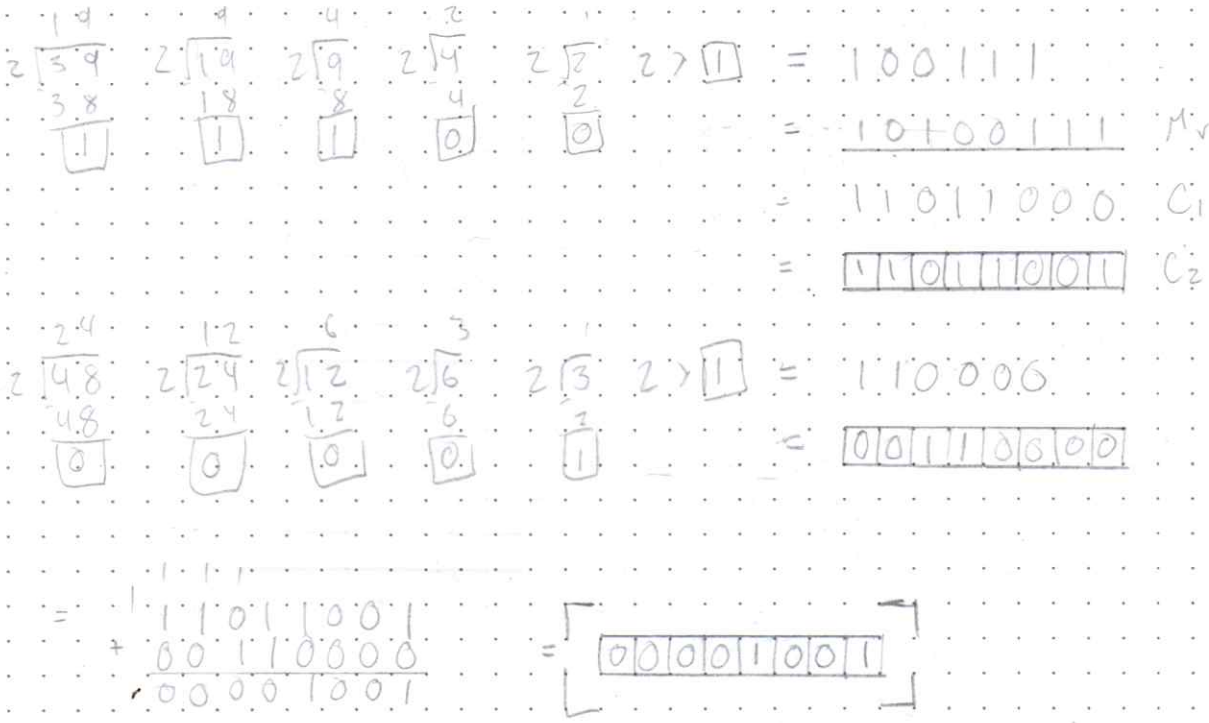
f) $(-23)_{10} + (-10)_{10}$ con 8 bits



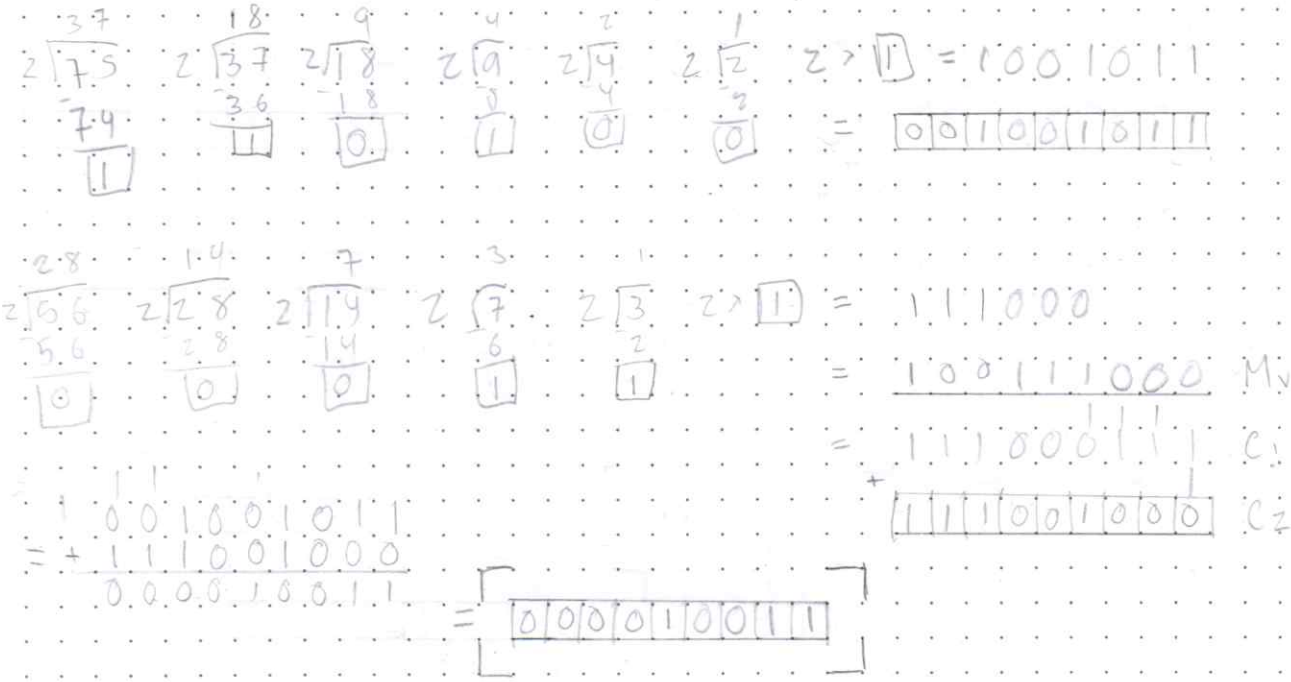
g) $(-93)_{10} + (83)_{10}$ con 11 bits



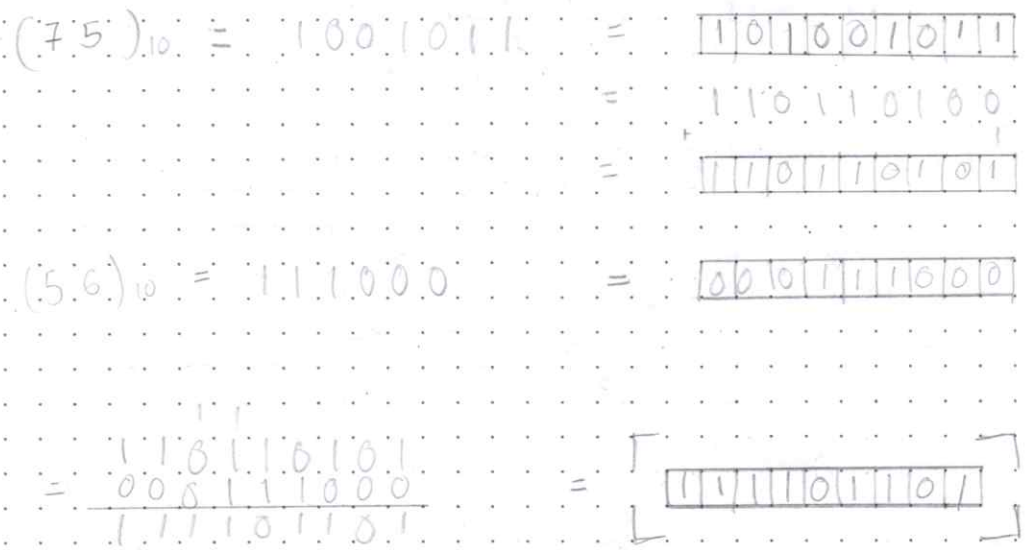
h) $(-39)_{10} + (48)_{10}$ con 8 bits



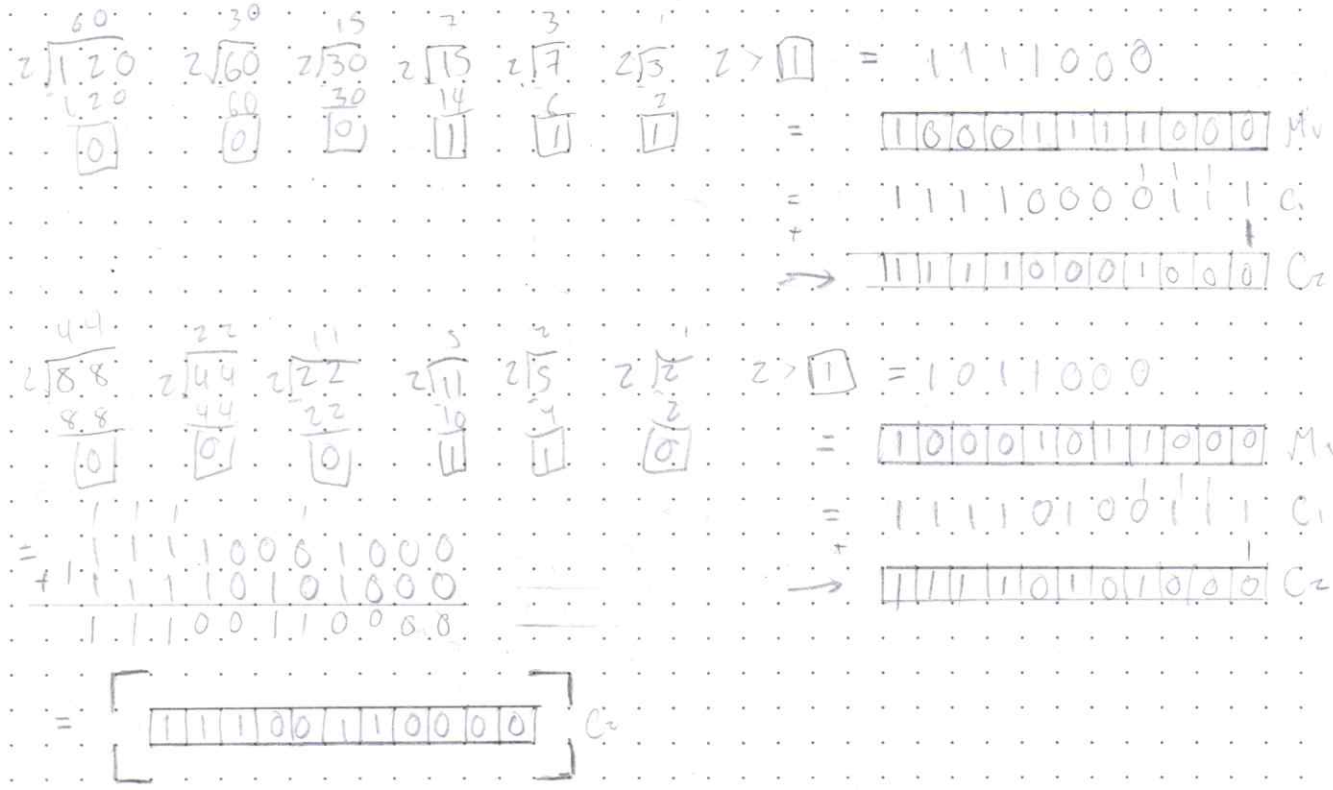
i) $(75)_{10} + (-56)_{10}$ con 9 bits



j) $(-75)_{10} + (56)_{10}$ con 9 bits



k) $(-120)_{10} + (-88)$ con 11 bits



l) $(-105)_{10} + (105)_{10}$ con 10 bits