1. Conversions de base

- Chiffre 1: 7^4, chiffre 2: 7^3, chiffre 3: 7^2, chiffre 4: 7^1, chiffre 5: 7^0

Exemple : $12\,345_{10} = (1*7^4) + (2*7^3) + (3*7^2) + (4*7^1) + (5*7^0)$

- $2AA3_{16} = (2*16^3) + (10*16^2) + (10*16^1) + (3*16^0) = 10\,915_{10}$

- Convertir le nombre $4B_{16}$

    o $4B_{16} = (4*16^1) + (11*16^0) = 75_{10}$

    o $4B_{16} = 01001011_2 \rightarrow (4 = 100$ et $11 = 1011)$

    o $4B_{16} = \underline{001}\,\underline{001}\,\underline{011} = 113_8$

- $1011_{10} = 0x3F3$

- $0xee = (14*16^1) + (14*16^0) = 238_{10}$

2.

$17_{10} = 10001_2$

$10001_2 = 2^4 + 2^0 = 17_{10}$

3.

$01101_2 \rightarrow 19_{10}$

$2^4 + 2^1 + 2^0 = 19_{10}$

$10011_2 \rightarrow -13_{10}$

$-(2^3 + 2^2 + 2^0) = -13_{10}$

4.

Pour 3,15

    1) base 10 → base 2
       $3_{10} = 2^1 + 2^0 = 11_2$

       $0,15_{10}$ → base 2 = 0,0100110...
       0,15*2 = 0,30
       0,30*2 = 0,60
       0,60*2 = 1,20
       0,20*2 = 0,40
       0,40*2 = 0,80
       0,80*2 = 1,60
       0,60*2 = 1,20
       0,20*2 = 0,40
       ...

    2) 3,15 = 11,00100110011001...
       $3,15 = 1,100100110011001... \times 2^1$

    3) $e_1 = 1$
       $e = 1 + 1023 = 1024_{10}$
       $e = 10000000000_2$

    4) s = 0
       $e = 1024 = 2^{10} = 10000000000$
       f = 1001001100110011001100110011001100110011001100110011

Pour -4

    1) base 10 → base 2
       $4_{10} = 2^2 = 100_2$

    2) 4 = 100
       $4 = 1,00 \times 2^2$

    3) $e_1 = 2$
       $e = 2 + 1023 = 1025_{10} = \underbrace{1024}_{2^{10}} + \underbrace{1}_{2^0}$

       $e = 10000000001_2$

    4) s = 1
       $e = 1025 = 2^{10} + 2^0 = 10000000001$
       f = 0000000000000000000000000000000000000000000000000000

5. 10-3+4-2 = 9