

Correction des exercices de numération

Exercice 1 :

1)

- $(123)_{10} = 1 \times 10^2 + 2 \times 10^1 + 3 \times 10^0$
- $(3623)_{10} = 3 \times 10^3 + 6 \times 10^2 + 2 \times 10^1 + 3 \times 10^0$
- $(5708)_{10} = 5 \times 10^3 + 7 \times 10^2 + 0 \times 10^1 + 8 \times 10^0$
- $(3940)_{10} = 3 \times 10^3 + 9 \times 10^2 + 4 \times 10^1 + 0 \times 10^0$

2)

- $(123)_8 = 1 \times 8^2 + 2 \times 8^1 + 3 \times 8^0$
- $(3623)_8 = 3 \times 8^3 + 6 \times 8^2 + 2 \times 8^1 + 3 \times 8^0$
- $(5703)_8 = 5 \times 8^3 + 7 \times 8^2 + 0 \times 8^1 + 3 \times 8^0$
- $(3540)_8 = 3 \times 8^3 + 5 \times 8^2 + 4 \times 8^1 + 0 \times 8^0$

3)

- $(123,561)_{10} = 1 \times 10^2 + 2 \times 10^1 + 3 \times 10^0 + 5 \times 10^{-1} + 6 \times 10^{-2} + 1 \times 10^{-3}$
- $(3623,71)_{10} = 3 \times 10^3 + 6 \times 10^2 + 2 \times 10^1 + 3 \times 10^0 + 7 \times 10^{-1} + 1 \times 10^{-2}$

En base octale :

- $(123,561)_8 = 1 \times 8^2 + 2 \times 8^1 + 3 \times 8^0 + 5 \times 8^{-1} + 6 \times 8^{-2} + 1 \times 8^{-3}$
- $(3623,71)_8 = 3 \times 8^3 + 6 \times 8^2 + 2 \times 8^1 + 3 \times 8^0 + 7 \times 8^{-1} + 1 \times 8^{-2}$

Exercice 2 :

Par la méthode de la division par exemple :

$$57 = (111001)_2$$

$$128 = (10000000)_2$$

$$123 = (1111011)_2$$

$$45 = (101101)_2$$

Exercice 3 :

1) et 2)

$$(23)_{10} = (11101)_2 = (17)_{16}$$

$$(78)_{10} = (1001110)_2 = (4E)_{16}$$

$$(95)_{10} = (1011111)_2 = (5F)_{16}$$

$$(122)_{10} = (1111010)_2 = (7A)_{16}$$

$$(530)_{10} = (1000010010)_2 = (212)_{16}$$

Exercice 4 :

Questions 1), 2) et 3) :

$$(1101001)_2 = (69)_{16} = (151)_8 = (105)_{10}$$

$$(100100111)_2 = (127)_{16} = (127)_8 = (295)_{10}$$

$$(110111101111)_2 = (DEF)_{12} = (6757)_8 = (3567)_{10}$$

Exercice 5 :

$$(1EC5)_{16} = (0001\ 111000101)_2 = (1111011000101)_2$$

$$(1672)_8 = (001\ 110\ 111\ 010)_2 = (1110111010)_2$$