

## Exercice introductif

- Convertir en binaire les nombres suivants :  
(397)<sub>10</sub>, (133)<sub>10</sub>, (110)<sub>10</sub>, (127.75)<sub>10</sub>, (307.18)<sub>10</sub>, (3AE)<sub>16</sub>, (FFF)<sub>16</sub>, (6AF)<sub>16</sub>, (5431)<sub>8</sub>.
- Convertir en décimal les nombres suivants :  
(101)<sub>2</sub>, (0101)<sub>2</sub>, (1101110)<sub>2</sub>, (1110110,1010)<sub>2</sub>, (F0A)<sub>16</sub>, (C01)<sub>16</sub>, (5431)<sub>8</sub>, (77)<sub>8</sub>.
- Convertir en hexadécimal les nombres suivants :  
(128)<sub>10</sub>, (101)<sub>10</sub>, (256)<sub>10</sub>, (1001011)<sub>2</sub>, (1001011)<sub>2</sub>, (357)<sub>8</sub>.

## Solution :

### ➤ Conversion en binaire les nombres :

$$(397)_{10} = ( \quad ? \quad )_2$$

$$397/2=198 \text{ reste } 1$$

$$198/2=99 \text{ reste } 0$$

$$99/2=49 \text{ reste } 1$$

$$49/2=24 \text{ reste } 1$$

$$24/2=12 \text{ reste } 0$$

$$12/2=6 \text{ reste } 0$$

$$6/2=3 \text{ reste } 0$$

$$3/2=1 \text{ reste } 1$$

$$1/2=0 \text{ reste } 1$$

$$(397)_{10} = (1 \ 1 \ 0 \ 0 \ 0 \ 1 \ 1 \ 0 \ 1)_2$$

- (133)<sub>10</sub>=(10000101)<sub>2</sub>
- (110)<sub>10</sub>=(1101110)<sub>2</sub>
- (127.75)<sub>10</sub>=(1111111, 1 1)
- (127)<sub>10</sub>=(1111111)<sub>2</sub> ;

$$0.75 * 2 = 1.50$$

$$0.50 * 2 = 1.00$$

- (307.18)<sub>10</sub>=(100110011,0010)

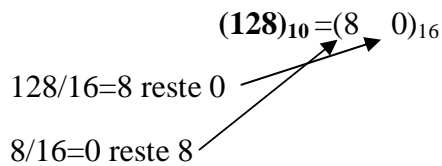
- $(3AE)_{16} = (\underline{0011} \ \underline{1010} \ \underline{1110})_2$   
 $\begin{array}{ccc} \uparrow & \uparrow & \uparrow \\ 3 & A & E \end{array}$

- $(FFF)_{16} = (\underline{1111} \ \underline{1111} \ \underline{1111})_2$
- $(6AF)_{16} = (\underline{0110} \ \underline{1010} \ \underline{1111})_2$
- $(5431)_8 = (\underline{101} \ \underline{100} \ \underline{011} \ \underline{001})_2$

➤ **Conversion en décimal les nombres :**

- $(101)_2 = 1*2^0 + 0*2^1 + 1*2^2 = (5)_{10}$
- $(0101)_2 = 1*2^0 + 0*2^1 + 1*2^2 + 0*2^3 = (5)_{10}$
- $(1101110)_2 = 0*2^0 + 1*2^1 + 1*2^2 + 1*2^3 + 0*2^4 + 1*2^5 + 1*2^6 = (110)_{10}$
- $(1110110,1010)_2 = 0*2^0 + 1*2^1 + 1*2^2 + 0*2^3 + 1*2^4 + 1*2^5 + 1*2^6 + 1*2^{-1} + 0*2^{-2} + 1*2^{-3} + 0*2^{-4} = (118.625)_{10}$
- $(F0A)_{16} = A*16^0 + 0*16^1 + F*16^2 = (3850)_{10}$
- $(C01)_{16} = 1*16^0 + 0*16^1 + C*16^2 = (3073)_{10}$
- $(5431)_8 = 1*8^0 + 3*8^1 + 4*8^2 + 5*8^3 = (2841)_{10}$
- $(77)_8 = 7*8^0 + 7*8^1 = (63)_{10}$

➤ **Conversion en hexadécimal les nombres :**



- $(101)_{10} = (65)_{16}$
- $(256)_{10} = (100)_{16}$
- $(1001011)_2 = (\underbrace{0100}_{4} \ \underbrace{1011}_{B}) = (4B)_{16}$
- $(357)_8 = (011 \ 101 \ 111)_2 = (01110 \ 1111) = (EF)_{16}$

### Solution d'exercice 1

```
Program exo1 ;
Var A :integer ;
Begin
A := 34 ;
A := 12 ;
Writeln('A=',A) ;
Readln ;
End.
```

### Solution d'exercice 2

```
Program exo2 ;
Var A,B,C :real ;
Begin
A := 12.43 ;
B := -0.12 ;
C := 3E18 ;
Writeln('A=',A) ;
Writeln('B=',B) ;
Writeln('C=',C) ;
Readln ;
End.
```

### Solution d'exercice 3

```
Program exo3 ;
Var verre,coupe: string;
Begin
verre :='café' ;
coupe :='thé' ;
Writeln('verre=',verre) ;
Writeln('coupe=', coupe ) ;
Readln ;
End.
```

### Solution d'exercice 4

```
Program exo4 ;
Var A,B :integer ;
Begin
A := 1 ;
B := A+3 ;
A := 3;
Writeln('A=',A) ;
Writeln('B=',B) ;
Readln ;
End.
```

### Solution d'exercice 5

```
Program exo5 ;
Var A,B,C :integer ;
Begin
A := 5 ;
B := 3 ;
```

```
C := A+B;
A := 2 ;
C := B-A;
Writeln('A=',A) ;
Writeln('B=',B) ;
Writeln('C=',C) ;
Readln ;
End.
```

### Solution d'exercice 6

```
Program exo6 ;
Var A,B:integer;
Begin
A := 3;
B := -5 ;
X :=A ;
A :=B ;
B :=X ;
Writeln('A=',A) ;
Writeln('B=',B) ;
Readln ;
End.
```