**Exercice 2 :**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **n** | **n2** | **2n** | **Log(n)** | **nLog(n)** |
| 1 seconde | **10^-7 \* n = 1**  **1/ 10^-7 =n**  **n= 10000000** | **10^-7 \* n² = 1**  **n²= 1/ 10^-7**  **n= 3162,27766** | **10^-7 \**2^n* = 1**  ***2^n = 1/10^-7***  ***n*ln(2) = ln(1/10^-7)**  **n = ln(1/10^-7)/ln(2)**  **n = 23,2534** | **10^-7 \* log(n) = 1**  **Log(n)=1/ 10^-7** |  |
| 1 minute | **10^-7 \* n = 60**  **60/ 10^-7 =n**  **n=600000000** | **10^-7 \* n² = 60**  **n²= 60 / 10^-7**  **n=24494,89743** | **10^-7 \* 2^n = 60**  ***2^n =* 60 */10^-7***  ***n*ln(2) = ln(60 /10^-7)**  **n = ln(60 /10^-7)/ln(2)**  **n =29,1603** | **10^-7 \* log(n) = 60**  **Log(n)=60/ 10^-7** |  |
| 1 heure | **10^-7 \* n = 3600**  **3600/ 10^-7 =n**  **n=3600/ 10^-7** | **10^-7 \* n² = 3600**  **n²= 3600 / 10^-7**  **n= 189736,6596** | **10^-7 \* 2^n = 3600**  ***2^n =* 3600 */10^-7***  ***n*ln(2) = ln(3600 /10^-7)**  **n = ln(3600 /10^-7)/ln(2)**  **n =35,0672** | **10^-7 \* log(n) = 3600**  **Log(n)=3600/ 10^-7** |  |
| 1 journée | **10^-7 \* n = 86400**  **86400/ 10^-7 =n**  **n= 86400 / 10^-7** | **10^-7 \* n² = 86400**  **n²= 86400 / 10^-7**  **n=929516,0031** | **10^-7 \* 2^n = 86400**  ***2^n =* 86400 */10^-7***  ***n*ln(2) = ln(86400 /10^-7)**  **n = ln(86400 /10^-7)/ln(2)**  **n = 39,6522** | **10^-7 \* log(n) = 86400**  **Log(n)= 86400 / 10^-7** |  |

**Exercice 3:**

Fun bool Double(nombre tab[])

Int i = 2 \* (longu(tab) \* (longu(tab) -1) / 2)

Int verif = 0 ;

Int count = 1 ;

Pour 0 à i :

Si tab[verif] == tab[count] :

Return True

Si count == longu(tab) :

count = 1

verif = verif +1

return false

Fun bool Double(nombre tab[])

Tabverif [] = tab[]

Pour I de 0 à longu(tab) :

Pour j de 0 à longu(Tabverif) :

Si tab[i] == Tabverif [j] :

Return True

return false

**Exercice 4 : Ordres de grandeur**

Donner l'ordre de grandeur des expressions suivantes

* (n2 – 3n -1 ) / (n+1) = O(n2)
* (n log(n) +n² + log(n)²)/ (n+1) = O(log(n)²)