Premier n tel que $U_n \geq A$

$U_n = 1 + (1/2) + \ldots + (1/n)$

```
A=10;
n=1 ;
U=1 ;
While U<A :
   n=n+1 ;
   U=U+( 1/n) ;
Print(n)
```

Réponse 12367

Premier n tel que $U_n < e$:

```
  e=0.001 ;
```

$U_{n+1} = \frac{Un}{1+Un}$ $U_0 = 1$

```
U=1 ;n=0 ;
While U>= e :
  n=n+1 ;
  U=U/(1+U)
Print(n)
```

Reponse 999

($1/u_n$ est arithmétique, $U_n = 1/n$)

Suite de Fibonacci

```
a=0 ;b=1
n = int(input('n')) ;
for I in range(2,n+1):
    c=a+b;
    a=b;
    b=c;
print(c)
```

pour n=10 on a 55

Suite double

$a_{n+1} = (a_n + 2b_n)/4$

$b_{n+1} = (2a_n + b_n)/4$

$a_1 = 0.5$ $b_1 = 0.25$

```
n=int(input('n=');
a=0.5;  b=0.25;
for I in range(2,n+1):
   c=(a+2*b)/4;
    b=(2*a+b)/4;
     a=c;
print(a); print(b)
```

π par Viete(1540-1603)

$x_{n+1} = \sqrt{2 + x_n}$ $x_0 = \sqrt{2}$

$y_{n+1} = \frac{2y_n}{x_n}$ $y_0 = 2$

y_n tend vers π

```
from math import sqrt
x=sqrt(2);y=2;n=int(input('n='));
for i in range(1,n+1):
   y=2*y/x;
   x=sqrt(2+x);

print(y)
```

π par Nicolas Cues(1401-1464)

$x_1 = 0$ $y_1 = 1/4$

$x_{n+1} = \frac{xn+yn}{2}$ $y_{n+1} = \sqrt{x_{n+1}\ y_n}$

$1/(2x_n)$ tend vers π

```
from math import sqrt

   x=0; y=1/4;
n=int(input('n='));
for I in range(2,n+1):
   x=( x+y)/2; y=sqrt(x*y)
```

avec n=10 on a 3.1416

voir univers de pi : pi314.net/