Correction TP 3 : Boucles for en Python

```
import numpy as np
import matplotlib.pyplot as plt


#Partie 2.1

def f1(x):
    return (np.sqrt(x)*np.exp(x))/(np.pi+x)**2

def calculSuite1(f,n):
    u=np.zeros(n)
    for k in range(n):
        u[k]=f(k)
    return u

#Partie 2.2

def f2(x):
    return (x**2+1)/2

def calculSuite2(f,init,n):
    u=np.zeros(n)
    u[0]=init
    for k in range (1,n):
        u[k]=f(u[k-1])
    return u

#Partie 3

u2=calculSuite2(f2,0,10)
plt.plot(u2,'+')

x=np.arange(1,11,1)
plt.plot(x,u2,'+')

#Exercice 4.1

def f3(x):
    return ((-1)**x)/(x+1)

u3=calculSuite1(f3,30)
plt.plot(u3,'+')

#Exercice 4.2

def f4(x):
    return (2*x+1)/(x+2)

u4=calculSuite2(f4,3,15)
plt.plot(u4,'+')
```

```
#Exercice 4.3

def calculSuite3(init0,init1,n):
    u=np.zeros(n)
    u[0]=init0
    u[1]=init1
    for k in range(n-2):
        u[k+2]=u[k]+u[k+1]
    return u

u5=calculSuite3(0,1,30)
plt.plot(u5,'+')
```