Codes du TP 12

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

```
#Exercice 0.1

def f(x):
    return np.exp(x)-x-1

x=np.arange(-1,2,0.0001)
plt.plot(x,f(x))

def suite1(n,u0):
    U=np.zeros(n)
    U[0]=u0
    for k in range(n-1):
        U[k+1]=np.exp(U[k])-1
    return U

plt.plot(suite1(10,-0.5),'+')

def suite2(A):
    u=1
    n=0
    while u<A:
        u=np.exp(u)-1
        n=n+1
    return n
```

```
#Exercice 0.2

def g(x):
    return 1/(1+x)

xbis=np.arange(0,1,0.0001)
plt.plot(xbis,g(xbis))

def suite3(n):
    v=1
    for k in range(n):
        v=g(v)
    return v

def suite4(n):
    U=np.zeros(n)
    U[0]=1
    for k in range(n-1):
        U[k+1]=g(U[k])
    return U

plt.plot(suite4(10),'+')

def suite5(eps):
    u=1
    n=0
    v=g(u)
    while np.abs(u-v)>eps:
        u=v
        v=g(v)
        n=n+1
    return n
```