Métodos numéricos para solução de EDOs

Método de Euler: $y_{n+1} = y_n + f(t_n, y_n)h$

Exemplo 1: $y' = 1 - t + 4y$

```python
import numpy as np
import matplotlib.pylab as plt


def f(t, y):
    return 1 - t + 4*y


def EDO_euler(f, y0, t0, NUMBER_OF_STEPS=100, h=0.01):

    y = np.zeros(NUMBER_OF_STEPS, dtype=np.float32)
    t = np.zeros(NUMBER_OF_STEPS, dtype=np.float32)

    y[0] = 1
    t[0] = 0

    for n in range(0, NUMBER_OF_STEPS - 1):
        K1 = f(t[n], y[n])
        y[n+1] = y[n] + K1*h
        t[n+1] = t[n]+h

    return (t, y)


t, y = EDO_euler(f, 1, 0)
plt.plot(t, y)
plt.show()
```