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import numpy as np

def f(x,signe):
    return (3 * x * x + signe* x) // 2

def calculate_euler(taille):
    a = np.zeros(taille, dtype=int)
    h = np.zeros(taille, dtype=int)
    euler = np.zeros(taille, dtype=int)
    a[1::4] = 1
    a[2::4] = 1
    a[0::4] = -1
    a[3::4] = -1
    h[1:] = [f(k // 2, -1) if k % 2 == 0 else f((k - 1) // 2, 1)
              for k in range(1, taille)]
    euler[0] = 1
    euler[1] = 1
    for x in range(2, taille):
        somme = 0
        y = 1
        while x - h[y + 1] >= 0:
            somme += a[y] * (x if x == h[y + 1] else euler[x - h[y + 1]])
            y += 1
        euler[x] = somme
    return euler

taille = 101
euler_numbers = calculate_euler(taille)
for k in range(1, taille):
    print(k, '-->', euler_numbers[k])

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