

例 3.5 Python 程序代码

```
from scipy.optimize import minimize
import numpy as np
from matplotlib import pyplot as plt

x = np.linspace(-2, 4, 50)
y1 = -x ** 2 + 2 * x - 2
y2 = -y1
plt.plot(x, y1)
plt.plot(x, y2)
plt.show()

def fun(args):
    a, b, c, d = args
    y = lambda x: a * x ** 3 + b * x ** 2 + c * x + d
    return y

if __name__ == "__main__":
    args = (0, 1, -2, 2) # a, b, c, d
    x0 = np.asarray(0.5) # 猜初始值
    res = minimize(fun(args), x0, method='SLSQP')
    print(-res.fun)
    print(res.success)
```