课程编号：04666008

Homework Assignment

Due on Monday June 25 (in class or by 4pm)

Implement the Nelder-Mead Simplex Algorithm using computer programming to minimize the following function:

$$f(x_1, x_2) = (x_2 - x_1)^4 + 12x_1x_2 - x_1 + x_2 - 3$$

(a) How many local minimal points does the function have? What are they? Which one is the global minimal point?
(b) What happens if you choose $\mathbf{p}_0=(0.6, 0.6)^T$ and $\lambda = 0.7$? Trace the progression of your iterations. Are you able to find the global minimal point? Why?
(c) What happens if you choose $\mathbf{p}_0=(-0.8, 1)^T$ and $\lambda = 0.7$? Trace the progression of your iterations. Are you able to find the global minimal point? Why?