Optimization methods. Fall 2011. HW-2

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Due day: Monday September 10

Minimize the function

$$f(x_1, x_2) = (x^4 + x^2 + y^2 + 1.2\, x\, (y+1)^{1.4} + 1)^{0.7}$$

by

1. Steepest descent method

2. Newton method

3. Modified Newton method (Levenberg - Marquardt algorithm)

Start from the points $[1, 0]$ and $[1, -1]$. Compute four iterations. Discuss your choice of parameters and compare results obtained by these algorithms.