Mathematical Methods and Modeling (MEF)

Optimization (EPS)

Academic Year 2015/2016

Homework (assigned on October 22, 2015 and due by November 6, 2015): up to 3 points in the mark

Given the following function

$$f(x,y) = \frac{(2x^2 + 8y^2 - 4x)}{\exp(x^2 + y^2 - 2x - 1)}$$

determine:

- the graph in a suitable bounded region,
- some level curves,
- the critical points,
- possible maximizers and minimizes (local and global),
- the solutions (if they exist) to the following constrained optimization problems:

$$Max/Min\ \ f(x,y)$$
$$Subject\ to$$
$$\begin{cases} y \geq x^2 - 2x + 1 \\ x \geq 0 \end{cases}$$

Please provide for all points above the results, the pictures and the Matlab scripts (.m), compressed in a single Zip file with filename "SURNAME_NAME_ENROLLMENTNUMBER.zip" and deliver it as attachment by e-mail to: JIANYI.LIN@UNIMI.IT

The homework has to be carried out individually.