

Introduction to Constrained Optimization

IMA205

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Deadline: Upload the answers and the notebook as a single .zip file to the site pédagogique before the 12th of February 2020 (23h59). Name it as 'TP2-IMA205-YOUR-SURNAME.zip'.

Equality constraint questions

1. Please solve by hand and draw the solution:

$$\begin{array}{ll} \max_{x,y} & f(x,y) = x - y \\ \text{s.t.} & g(x,y) = x^2 + y^2 = 1 \end{array} \quad (1)$$

Inequality constraint questions

2. Please solve by hand and draw the solution:

$$\begin{array}{ll} \max_{x,y} & f(x,y) = xy \\ \text{s.t.} & g(x,y) = x^2 + y^2 \leq 4 \end{array} \quad (2)$$

3. Please solve by hand and draw the solution:

$$\begin{array}{ll} \max_{x,y} & f(x,y) = \ln(x) + y \\ \text{s.t.} & g(x,y) = x^2 + y^2 \leq 4 \\ \text{s.t.} & h(x,y) = x - y = 0 \end{array} \quad (3)$$