

# Computational Aspects of Optimization

## Homework 2

- a) Given the following linear programming problem, solve it using MATLAB, GAMS and R languages.

$$\begin{cases} \max 24x_1 + 14x_2 \\ 3x_1 + 2x_2 \leq 1200 \\ 4x_1 + x_2 \leq 1000 \\ 2x_1 + x_2 \leq 700 \\ x_1 \geq 0, x_2 \geq 0 \end{cases}$$

- b) Then define its dual formulation and solve the dual problem with MATLAB, GAMS and R languages.
- c) Compare the two results recalling the relation between primal and dual. Then test the concept of shadow prices and their implication with some numerical examples.

Please provide the results in 7 distinct files:

- Primal MATLAB
- Primal GAMS
- Primal R
- Dual MATLAB
- Dual GAMS
- Primal R
- Comments and analysis in text format (.doc, .docx, .txt, .tex, .pdf, whatever)

And zip the file in a compressed folder named as follows: "name\_surname\_2"

Deadline: 28 March 2017