Algorithms for Optimal Decisions
Tutorial 2
Questions

Exercise 1 *Labor costs* $2\$/hour$ *and capital costs* $1\$/unit$*. If* l *hours of labor and* k *units of capital are available then* $l^{2/3} \cdot k^{1/3}$ *machines can be produced. If the budget for purchasing capital and labor is* $10\$$*, what is the maximum number of machines that can be produced?*

Exercise 2 *Find the optimum solution of the following constrained problem:*

$$\begin{aligned} \max_x f(x) &= x_1x_2 + x_2x_3 + x_1x_3 \\ s.t. \quad & x_1 + x_2 + x_3 = 3. \end{aligned} \tag{1}$$

Exercise 3 *Given a fixed area of cardboard, try to find the dimensions of a cardboard box with the largest possible volume.*