



Exercise sheet 1

Submission deadline: November 13, 10:00

Task 1: Like Ice in the Sunshine (20 points)

An ice-cream seller can produce at most 10 kg of ice-cream per hour. He sells only two kinds of ice-cream, Chocolate Fudge Brownie and Strawberry Cheesecake. His ice-cream machine can supply at most 30 kWh per hour. The following table shows further particulars of the ice-cream man's business.

	Chocolate Fudge Brownie	Strawberry Cheesecake
Retail price	80 euro per kg	65 euro per kg
Cost of productions	50 euro per kg	40 euro per kg
Needed energy	5 kWh per kg	2 kWh per kg
Marketable amount	max. 6 kg	max. 9 kg

Although summer has ended, the ice-cream man wants to maximize his profits.

- Set up the correct Linear Programming problem. Specify all constraints and the objective function. (5 points)
- Draw the solution polyhedron for the given problem. (5 points)
- Find the optimal solution for the given problem by using the simplex method. Provide your calculations. (8 points)
- Find the optimal solution for the given problem by using the *linprog* function in MATLAB. Provide the commented (!) script with the names and student-IDs of all group members in the moodle! (2 points)

Please prepare all of your submissions in english!