Name:

Model-based Decision Support

Exam 3 (homework) Enrolment number: Till April 6, 2017

Use the last three digits of your student enrolment number. The last but two digits defines Z, the last but one digit defines Y and the final digit defines X. If a digit is zero then use 10 instead. (Example: enrolment number 1499502 results in Z=5, Y=10, and X = 2).

Cutting problem: A DIY market faces the following decision problem: a customer has ordered 30 pieces 4m x 3m, 50 pieces 4m x 5m, as well as 20 pieces 4m x 6m plywood panels. These panels are cut from boards with standard measure of 4m x 9m. Each standard board costs 75+X Euro and there are sufficient many boards in stock. The customer agrees to pay 40+Y Euro for a 4m x 3m, 90-Z Euro for a 4m x 5m, and 100 Euro for a 4m x 6m panel. Cut panels of the format 4m x 3m, 4m x 5m, and 4m x 6m can be sold to walk-in customers for a price of 2 Euro per square meter. DIY's board supplier takes back waste parts and refunds 50 Cent per square meter waste. Use GAMS to formulate a profit maximizing mathematical programming model and compute a solution.

(Yes, assume that the customer order should be fulfilled fully for sure. The decision problem is to find optimal cutting decisions in order to maximize profit.)

Would you be so kind to copy your GAMS Code of your model and a **verbal description** of your optimal cutting solution and the optimal profit value to a sheet of paper and submit it to me at class on April 6. Please do not deliver any GAMS listings. I expect deliveries of a little bit more than one page, any deliveries of more than three pages are unwanted. (Those who don't have a printer may submit electronically by email.)