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## MVE145/MSG600 Statistical Quality Control

### Common instructions for home assignments

Each registered student will be assigned a parameter/data number, denoted pdn, and (s)he will find data to the home assignments by clicking on a link at the course web page

<http://www.math.chalmers.se/Stat/Grundutb/CTH/mve145/1112/>

The file names are `dataHx.pdf` and `dataHx.m`, where `x` is to be replaced by the number of the assignment. Parameters and data are given as Matlab instructions in the `.m` file. It is recommended that you use copy and paste (if possible) when transferring parameters and data to your own Matlab command window or `.m` file.

Typically a home assignment consists of three problems and each acceptable solution gives one credit point.

Normally solutions are required at the lecture one week after the hand out of the assignment. They may also be e-mailed to `tommy@chalmers.se`. If so, the e-mail must arrive before noon on the last day for handing in solutions. Note also, the only accepted formats for attachments are

`.txt`, `.m`, `.eps`, `.pdf`

Attachments of other types will be discarded without notice.

Doing home assignments is part of the requirements of the course and the accomplishment influences the final grade. It is thus highly unethical to show solutions to a fellow student, and it is an act of cheating to copy another student's solutions.

## HA1) Acceptance sampling

1. Draw the type-A and type-B OC curves for the single-sampling plan  $n, c$ , if the lot size is  $N$ . What are the acceptance probabilities for lots with  $f = 7$  defectives?
2. Suggest a a single-sampling plan such that the probability of acceptance is  $\approx 1 - \alpha$  for lots with fraction defective AQL =  $p_1$  and  $\approx \beta$  for lots with fraction defective RQL =  $p_2$ . Try to keep the maximal error less than 0.01.
3. Draw the type-B OC curve for the double-sampling plan  $n_1, c_1$  and  $n_2, c_2$ . Find the acceptance probability  $P_a$  for lot fraction defective  $p = 0.05$ ? Find the lot fraction  $p$  with acceptance probability  $P_a = 0.10$ ?

Deadline for solutions to this assignment is Wednesday, November 2, 2011.

Parameters and data are published at the course web page

<http://www.math.chalmers.se/Stat/Grundutb/CTH/mve145/1112/>  
in the files `dataHA1.pdf` and `dataHA1.m`.