



General Rules

- Due date is 23 December 2002, Monday and **not subject to postpone**.
- Late submission is **not** allowed.
- There is **no** teaming up. The homework has to be done/turned in individually.
- In case of cheating, all parts involved (source(s) and receiver(s)) get zero.
- You will submit your homework electronically and also you are supposed to return a hard copy of your programs to our office (A-401). To submit your homework electronically you will use `submit371` command through a tar archive file (`hw3.tar`). This file will contain your program source codes
- In your program codes, you are required to write comments that describe your code.

Homework

1. Write a Matlab function to solve an overdetermined system approximately in the sense of Least Squares.
2. Write two Matlab script files (`run1.m` & `run2.m`) that solves the following curve fitting problems using the data given for each problem and the function defined in Part 1. In these scripts you should also draw the graphs which contain both data points and fitted curve in the given interval.

- a. The water level in the North sea is mainly determined by the so called M-tide whose period is about 12 hours and has the form:

$$a_1 + a_2 \cos(2\pi T / 12) + a_3 \sin(2\pi T / 12)$$

Data:

x	0	2	4	6	8	10
y	1	1.6	1.4	0.65	0.21	0.8

- b. Determine a and b s.t. the curve ax^b approximates the following data in the LS sense.

x	1	2	3	4	5	6
y	3	12.5	26	49	77	106

3. Prepare a report for this homework containing the following sections:
 - Source code of Least Squares method written in Part 1.
 - The graphs for Part 2a& 2b, containing both data points and fitted curve.
 - Comment on
 - Uniqueness of your results,
 - Data Linearization