



Information Technology

2010/2011

## Homework Assignment

Prepare a report on the following problem: A material point is moving along a trajectory given by

> $x(t) = a(2\cos t - \cos 2t),$  $y(t) = a(2\sin t - \sin 2t),$

where the trajectory parametr changes in the range  $t \in [0, 2\pi]$  and the constant a = 4. Find:

- a) The trajectory shape.
- b) The velocity vectors at N = 5 points distributed in equal intervals in the range of parameter t.
- c) The point speed (velocity magnitude) as a function of the parameter t treated as time.

The report should contain (at least):

- a) Author's name, matric. card number.
- b) The problem statement with the equations for the trajectory.
- c) A picture showing the trajectory.
- d) A figure showing the speed function  $f(t) = ||\vec{v}(t)||$ .
- e) The source code of all Octave scripts used for preparing the report.

## Important

- Reports should be prepared as PDF files and sent by e-mail to the respective tutor.
- For grading information, hints and additional materials please visit http://www.l5.pk.edu.pl/ ~putanowr/iten .

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