

Homework Assignment

Prepare a report on the following problem:

Given a set of four material points moving in the X-Y plane draw the trajectory of the centre of mass of these points. Assume that the time t changes in the range $[0, 4\pi]$ and the equations for the points trajectory and mass are:

$$\begin{array}{ll} x_1(t) = 0.0 & x_2(t) = 3 \cos(t) \\ y_1(t) = 4 \sin(t) + 1 & y_2(t) = 0.0 \\ m_1(t) = 5 & m_2(t) = 2 \end{array}$$

$$\begin{array}{ll} x_3(t) = 0.0 & x_4(t) = 2 \cos(t) + 2 \\ y_3(t) = 0.0 & y_4(t) = 2 \sin(t) + 2 \\ m_3(t) = 2 \sin(t) + 3 & m_4(t) = 3 \end{array}$$

The report should contain (at least):

- Author's name, matric. card number.
- The problem statement with the formulae for trajectory and mass change of the points 3 and 4.
- A picture showing the trajectory of the mass centre. Indicate the direction the mass centre moves.
- 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.15.pk.edu.pl/~putanowr/iten>.