CIC6010 - Python programming

Practice session 6

1) Two asteroids are on a near collision course with each other. Your task is to estimate their positions over time and plot the distance between them. We can model their movements in two dimensions (as they are travelling in the same plane). Their initial positions and velocities are as follows:

Asteroid 1 position = (150,4; 200,5) and velocity = (4,9; 7,1)
Asteroid 2 position = (122,6; 64,0) and velocity =(5,2; 2,95)

You must read the numbers from the provided text file. The text file contains some additional information which can be ignored.

Asteroid 1 has initial position x=150.4; y=200.5, relative to the origin, that has been chosen to be close to where the paths of the two asteroids will cross. The units here are unimportant (but each unit might correspond to 1000km, perhaps). The velocity of the asteroid I is 4.9, 7.1, given as units per hour, with separate components for x and y directions, i.e. it is moving at 4.9 units per hour in the x direction, and at 7.1 units per hour in the y direction. Your task is to compute the positions of the two asteroids at one hour intervals across a 50 hour period, and to estimate the distance between them against time. The distance between positions (x1, y1) and (x2, y2) can be computed using Pythagoras' theorem.