This assignment was locked Jul 8 at 11:59pm.

Homework 5 is to solve three ordinary differential equations. For each equation, solve it for the range 0-7, with 700 data points. Use the python function odeint! (For reference, see verysimpleODE.py and some of the other examples.)

You will turn in a single python file called hw5.py which solves the three problems. For each problem graph the requested items. Note that y' is the first derivative of y with respect to t. Likewise, y'' is the second derivative of y with respect to t. Note that np.cos() and np.sin() are computing values in radians.

Problem 1: $y' = \cos^2(t)$; initial value: y(0)=1. Plot y vs t.

Problem 2: $y' = 2y + 2e^{3t}$; initial value y(0) = 5. Plot y vs t.

Problem 3: $y'' = -2y + 2y'$; initial values y(0) = 1, y'(0) = 1. Plot y vs t and y' vs t on the same plot.