

Graded Assignment 3
Math 341 - Fall 2002
Prof. John A. Pelesko

This assignment is to be handed in on November 1st. You are encouraged to work together, but the work you hand in must be your own.

(1) (10 points) Consider the initial value problem

$$y'' - y' + 0.25y = 0, \quad y(0) = -2, \quad y'(0) = b.$$

Solve. Find the value of b that separates solutions that grow in time from solutions that decay in time. Sketch.

(2) (10 points) Consider the initial value problem

$$y'' + 0.1y' + y = 0, \quad y(0) = 2, \quad y'(0) = 0$$

which models the motion of a damped mass spring system. Determine how long it takes for oscillations to decay to ten percent of their initial amplitude.