Math 336 Ordinary Differential Equations Written Assignment 3

Higher Order Differential Equations- Applications

1 Reading assignment

Read chapter 2 from the book.

2 Problem set

1. Problem 1 in Section 2.5 (resonance frequency is the same as practical resonance frequency that we defined in class). Use a graphing utility (or Matlab) to plot the amplitude $C(\omega)$ as a function of ω showing the maximum occurring at the practical resonance frequency.
2. Problem 6 in Section 2.5. Use a graphing utility to plot your solution, **illustrating both the transient solution and the resonance**.
3. Add a small damping term in problem 6 above, then redo. Your graph now should illustrate both the transient solution and the steady state periodic solution.