Practice Problems 5

Math 4B, Spring 2017, Dr. Paul

Practice problems are for your own benefit. You won't turn them in or have them graded, but I have the expectation that you have done these when I write my tests. You can check answers with a TA, in Math Lab, or with the professor.

1. Work through the details of our in-class derivation of how to handle complex roots to the characteristic polynomial.
2. Show using guess-and-check that $y = te^{rt}$ is a solution to $y'' - 2ry' + r^2y = 0$.
3. For an object of mass m attached to a spring with spring constant k, find:
   (a) The frequency with which the mass oscillates.
   (b) The amplitude of the oscillation if the object has initial position $x(0) = 0$ and initial velocity $x'(0) = v_0$
   (c) What damping constant will critically damp the system.