Math 220, Week 7 Tuesday, Section 4.4, 4.5

Spring 2020, XT

4.4 Nonhomogeneous Equations: the Method of Undetermined Coefficients
4.5 The Superposition Principle and Undetermined Coefficients Revisited

1. Find a **general** solution to the differential equations $y'' + 4y = \sin t - \cos t$.

2. Find the solution to the initial value problem: $y'' = 6t, \quad y(0) = 3, \quad y'(0) = -1$

3. Determine the form of a particular solution for the differential equation (do not evaluate coefficients).

   (a) $y'' + 2y' - y = 10$

   (b) $y'' + 4y = 8\sin 2t$

   (c) $x'' - 4x' + 4x = te^{2t}$

   (d) $y'' - 2y' + y = 7e^t \cos t$

   (e) $y'' - 2y' - 3y = 3t^2 - 5$

   (f) $y'' + y' - 12y = e^t + e^{2t} - 1$