

Differential Equations (92.236)

Homework Assignment #12 Spring 2007

Linear Constant Coefficient Nonhomogeneous Equations

Problem 1

Find the general solution to the following forced systems:

a. $y'' - 4y = \sinh x$

b. $y''' + 4y' = 3x - 1$

c. $y'' + 3y' + 2y = 4e^x$

d. $y''' - y = e^x + 7$

e. $y'' - 2y' + y = \frac{1}{2}x^{-1}e^x$

Problem 2

Solve the following IVPs:

a. $y'' - 2y' + 2y = x + 1$ with $y(0) = 3$ and $y'(0) = 0$

b. $y'' + y = x^2 + 1$ with $y(0) = 5$ and $y'(0) = 2$

c. $5y'' + y' = -6x$ with $y(0) = 0$, $y'(0) = -10$