

**Differential Equations (92.236)**

**Homework Assignment #11 Spring 2007**

*Linear Constant Coefficient Homogeneous Systems*

**Problem 1**

Find the general solution to the following linear constant coefficient homogeneous ODEs:

a.  $y'' + 3y' - 10y = 0$

b.  $y'' + 8y' + 25y = 0$

c.  $y''' + 3y'' - 4y = 0$

d.  $y^{(4)} - 8y'' + 16y = 0$

e.  $y'' - 4y' + 13y = 0$

f.  $y''' + 4y'' + 4y' = 0$

**Problem 2**

Find the unique solution to the following linear constant coefficient homogeneous IVPs:

a.  $9y'' + 6y' + 4y = 0$  with  $y(0) = 3$  and  $y'(0) = 4$

b.  $y''' + 9y' = 0$  with  $y(0) = 3$  and  $y'(0) = -1$  and  $y''(0) = 2$

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