R·I·T School of Mathematical Sciences

Homework 5

MATH 211

1. Find the general solutions to the following homogeneous equations.

   (a) $y'' + 6y' + 5y = 0$

   (b) $y'' + 9y = 0$

2. Solve the following initial value problem.

$$y'' + 6y' + 9y = 0, \; y(0) = 0, \; y'(0) = 1$$

3. Find the general solutions to the following nonhomogeneous equations.

(a) $y'' + 5y' + 6y = e^x$

(b) $y''' - 2y'' = \sin x$

4. Solve the following initial value problem.

$$y'' - 5y' + 6y = e^{3x}, \ y(0) = 0, \ y'(0) = 0$$