

Homework 4

1. Find the general solution of the differential equations

$$16y'' + 24y' + 9y = 0,$$

$$y'' - 2y' - 3y = 3e^{2t},$$

$$y'' + 2y' = 3 + 4\sin(2t),$$

$$y'' + 9y = 9\sec^2(3t),$$

$$y'' - 4y' + 4y = (x + 1)e^{2x}.$$

2. Solve the initial value problems

$$9y'' - 12y' + 4y = 0, \quad y(0) = 2, y'(0) = -1,$$

$$y'' + y' - 2y = 2t, \quad y(0) = 0, y'(0) = 1,$$

$$y'' - 2y' + y = te^t + 4, \quad y(0) = 1, y'(0) = 1.$$