

Homework 4

1. Solve the differential equations

$$y'' - y' - 6y = 0$$

$$y'' + 8y' + 16y = 0$$

$$3y'' + 2y' + y = 0$$

$$y''' - 4y'' - 5y' = 0$$

$$y''' + 3y'' + 3y' + y = 0.$$

2. Solve the initial value problems

$$y'' + 16y = 0, \quad y(0) = 2, y'(0) = -2$$

$$\frac{d^2y}{dt^2} - 4\frac{dy}{dt} - 5y = 0, \quad y(1) = 0, y'(0) = 5$$

$$y'' + y' + 2y = 0, \quad y(0) = y'(0) = 0.$$