HOMEWORK 10, M 331
DUE 4/23/09

Problem 1. Find the solution of the inhomogeneous ODE

$$y'' + y = f(t)$$

with initial conditions $y(0) = y'(0) = 0$, where

$$f(t) = \begin{cases} 0 & t < \pi \\ 1 & \pi \le t < 3\pi \\ 0 & 3\pi \le t \end{cases}$$

Problem 2. Find the solution of the inhomogeneous ODE

$$y'' + 3y' + 2y = u_1(t)$$

with initial conditions $y(0) = 0$ and $y'(0) = 1$.

Problem 3. Find thel solution of the inhomogeneous ODE

$$y'' + y = f(t)$$

with initial data $y(0) = y'(0) = 0$, where

$$f(t) = \begin{cases} t & 0 \le t < 2 \\ 2 & 2 \le t \end{cases}$$

Problem 4. Find the solution of the inhomogeneous ODE

$$y'' - 4y = u_2(t) - u_1(t)$$

with initial conditions $y(0) = 0$ and $y'(0) = 1$.