HW04

MATH 20D, LECTURE D00, FALL 2017

DUE TUESDAY, OCT 31 NAME:

1. Find the general solution of the given differential equation.
   (a) $4y'' - 4y' - 3y = 0$.
   (b) $16y'' + 24y' + 9y = 0$.
2. Solve the given initial value problem. Sketch the graph of the solution and describe its behavior for increasing t.
   (a) $9y'' - 12y' + 4y = 0, y(0) = 2, y'(0) = -1$.
   (b) $y'' - 6y' + 9y = 0, y(0) = 0, y'(0) = 2$.
   (c) $y'' + 4y' + 4y = 0, y(-1) = 2, y'(-1) = 1$.
3. Use the method of reduction of order to find a second solution of the given differential equation.
   (a) $t^2y'' - 4ty' + 6y = 0, t > 0; y_1(t) = t^2$.
   (b) $t^2y'' + 2ty' - 2y = 0, t > 0; y_1(t) = t$.
4. Find the general solution of the given differential equation.
   (a) $y'' - 2y' - 3y = 3e^{2t}$.
   (b) $y'' + 2y' + y = 2e^{-t}$.
   (c) $y'' - 2y' - 3y = -3te^{-t}$.