

HOMEWORK ASSIGNMENT #7, DUE MARCH 9, 2016

- 1) Given that $y_1(x) = x$ and $y_2(x) = \frac{1}{1+x}$ are linearly independent solutions of

$$(2x+1)(x+1)y'' + 2xy' - 2y = 0,$$

find the general solution of

$$(2x+1)(x+1)y'' + 2xy' - 2y = (2x+1)^2.$$

- 2) Find the general solution of $y'' + 4y = 12x^2 - 16x \cos 2x$.
 3) Solve the initial value problem $y'' - 2y' - 3y = 2e^x - 10 \sin x$, with $y(0) = 3$, $y'(0) = -2$.
 4) Find the general solution of $y'' - 2y' + y = xe^x \ln x$.
 5) Find the general solution of $y'' + 2y' + y = e^{-x}/x$.

Also from the text:

Section 4.1: Problems 33, 35

Section 4.4: Odd Problems 1-19, 27, 29, 31

Section 4.6: Odd Problems 3-23

Section 4.7: Odd Problems 1-13, 19, 21, 23