

MATH 267 (Section E1) Homework No. 4

Reading

Sections 3.6 (may omit pg. 182-183), 3.7, 3.8, 3.9.

Suggested Problems

Section 3.6: Exercise 1,3,7,8,13

Section 3.7: Exercise 5,7,8,13,14.

Problems to be handed in in class on Friday February 16-th

Problem 1 Consider the differential equation

$$t^2y'' - ty' + y = 0,$$

the function $y_1 = t$ is a solution of this equation. Use reduction of the order to find another solution y_2 so that y_1 and y_2 form a fundamental set of solutions. Use y_1 and y_2 to write the general solution of this equation.

Problem 2 Use the method of undetermined coefficients to find the general solution of the equation

$$y'' - 4y = e^{2t} + t \sin(t).$$

Problem 3 Use the method of variation of parameters to find the general solution of the equation

$$y'' + y = \tan(t).$$