

Homework Assignment #3

Due : 18 February 2009 (Wed) in class

Late homework is not accepted without a university approved excuse.

Problems 4,24	page 164	(1 points each)
Problems 12,14	page 164	(2 points each)
Problem 10a, 10c	page 164	(1 point each)
Problems 4,8	page 174	(1 point each)

Extra credit problem (3 points): *Show that in Theorem 4 on page 171 the assumption that  $y_1$  and  $y_2$  are solutions to a differential equation  $y''+py+qy=0$  is essential i.e., if we do not assume it then we can always find two (differentiable) functions  $y_1$  and  $y_2$  on some interval  $(a,b)$  such that  $y_1$  and  $y_2$  are linearly independent on  $(a,b)$  and  $W[y_1,y_2](x_0)=0$  for some  $x_0$  in  $(a,b)$ .*

NOTE:

Solutions must be written clearly, all computations must be explained and each solution has to have a logical structure. Apart from incorrect mathematical content points will be deducted if a solution is disorganized, written in a chaotic manner, poorly explained etc.