Math 325, Spring 2000

Assignment 2, due February 11

Read Boyce and DiPrima, Sections 8.1-8.2, 8.4, 8.6, 7.1-7.2 (in that order) and Differential Equations with Maple, Chapters 4, 5, 7 and 8.

Do Problem Set C #1,8,11,15,16 in Differential Equations with Maple. Also, add the following part to #15:

15 e) Modify the program to implement the Runge-Kutta method and repeat parts a) and b) using the Runge-Kutta Method. Also use the Runge-Kutta Method with the same step sizes as in a) and b) on the interval $0 \leq x \leq 10$. Compare the plots for the two methods.

On this assignment (including the Bonus Problems) you may work in a group of at most three students. If you work in a group, the group should turn in **only one** assignment, with the names of all members of the group on it.

You may discuss the problems with members of other groups, but you may not copy any work from another group. Copying some work from another group is a violation of the Honor Code.

Bonus Problems, due February 14

On #8d and e, verify the limits mathematically.

On each part of #11, explain mathematically how you know the answer you obtained from the plot is correct. (You may turn in any number of parts.)

On #16, explain how you know your answer has the desired accuracy.

Note: Your solution to a bonus problem **must** include a copy of your Maple solution to the original problem.