

Homework 4

Due October 11

Before writing your solutions commit yourself to being correct and clear throughout your arguments. In order to receive any credit the grader must be able to follow your arguments.

This is an individual assignment. While you may discuss the problems with your colleagues, you will write up your own individual solutions.

1. (10 points) Problem 2 page 63.
2. (10 points) Problem 4 page 68.
3. (15 points) Problem 1 page 71.
4. (15 points) Problem 1 page 75.
5. (15 points) Problem 3 page 80.
6. (15 points) Problem 4 page 80.
7. (20 points) Write a short essay (about 250 words, preferably typed) about the applicability of PDEs in the real world. You may focus on one process (e.g. heat conduction) and discuss it in detail, or you may talk about more than one phenomenon. Your essay should explain the notation, contain formulas describing the process, and give a physical interpretation of the process based on the mathematical formulas that you learned so far.