The First Group Project

This is due next Thursday September 28. You are to work in the groups that were assigned you the day we handed out the playing cards. These groups should not be any larger than 4 persons and preferable of size 4 exactly. Each group will turn in one paper with all your names on it. To try to insure that everyone odes their share of the work each name should have a percentage after it that represents the percentage of the work that the group as a whole felt that each person did. Thus if the people in the group are A, B, C, and D and everyone put about the same amount of work into the project, then everyone would be rated 25%. If however person A put in a lot of effort and person C only only did a little bit the numbers might look like A 40%, B 25%, C 10% D 25%. As long as all the numbers are above 10 % this will not effect the grade, but anyone who does less than 10 % will be penalized.

You are being given the project two weeks before it is due, which gives you a long enough period to find a couple of times where you can all meet. One good time and place for this is Fridays in our regular class room at the regular class time.

The Problem

The Apple Orchard Problem on pages 51 and 52 of the text (Problems 1, 2, 3, and 4).

The Write Up

Your are to pretend your group is a consulting firm (find a clever name for the company) hired by an apple grower to find the best number of trees to plant in his orchard. Like most people buying a service he wants to be sure that he is getting what he pays for. So your answer most come with an explanation he can follow. (And in real life your grade will depend on your explication.) Here are some remarks on the individual problems.

PROBLEM 1. The idea of replacing the graph of a function that is not known exactly by a piecewise linear function is common in engineering.

PROBLEM 2. Note that part of the problem is to describe the graph in words.

PROBLEM 3. Note that you are given the answer to this problem. Thus explaining how you got the answer is the important thing.

PROBLEM 4. This becomes rather easy once you have drawn some graphs. If you are confused as to what to do with the P's and Q's put in some numbers for them and work the problem with these numbers. After you have done this several time the pattern should become clear.

A GENERAL REMARK. As said above, part of the grade depends on you writing it up in a way that would convince a farmer, who we should assume is sharp but is not a mathematician. In the past some of the groups have thought that this meant that they should explain in very great detail all the calculation being done. This is *not* what is going to convince the farmer. What will convince her or him is a graph with an explication something like "we see from the enclosed graph (see figure 3) that the largest total yield $T(N)$ occurs when the number of trees is $N = $ ____. This does not mean that you should leave out the calculations, but you might consider putting them in an appendix so that they can be checked by anyone who in interested (and I will be interested) without distracting from the explanation to those (like our farmer) who can read graphs, but dislike calculations.