

This lab involves Project 2 (Firebreaks) at the end of Chapter 4 of your textbook. Please bring your textbook to lab. For this lab, you will work in groups of two or three, and submit one lab report, which is due 5pm Thursday November 10.

Groups for Lab 10:

Yohann Ben Luis	Nathaniel Min Ah Connor	Gretchen Shelby Garner	Joel Edgar Justin	Cristian G. Robert
Mitchell Grace Becca	Aaron Alan Jordan	Zoe Jacob D. Kelly	Jacob G Jackson	

Goals of Lab 10:

1. To apply the optimization techniques of calculus to a forest management question.
2. To write a clear, concise, compelling professional report.

The Story:

Your group is a group of interns for an environmental engineer, Jerry Harris, who works for the National Parks Service. Jerry has asked you to research the use of firebreaks to contain forest fires. He suggests that you consider a model forest, fifty square kilometers, and that you use the calculus technique of optimization to determine some advantages and disadvantages of using firebreaks in certain configurations. (See the problems in Project 2 for the specific configurations.) Jerry is going out of town for the week, but when he comes back he expects to have a written report, containing your findings, on his desk.

Written Report:

Your report should be in the form of a *professional report* (in contrast to the non-technical mathematical writing you did last week.) Use principles of good mathematical writing, as in described in Guide to Writing Mathematics. Each group of students will hand in a single report. Your report should contain the following parts:

1. Heading. At the top, include a title for your report and list the names of the people in your group.
2. Abstract. In one paragraph, summarize the purpose of your investigation and your principal findings.
3. Procedure and Observations. Summarize what you did in order to work through the problems outlined for you, and present your results in a succinct, easy-to-grasp form, using tables or pictures or graphs with labels, where appropriate.
4. Conclusions. Write your mathematical conclusions in a paragraph or two and explain the significance of your conclusions to forest management.

Please submit the final draft of your lab report to the folder entitled “Lab10_Reports” in the Collaborative folder of the Math211 folder on the M-drive.

Evaluation: I will evaluate your reports based on the quality of your writing and the correctness of the mathematics. Each individual in the group will need to fill out an evaluation form for your group (next page). I will take this into account when assigning individuals grades from the lab report.

There are many ways in which a group member can contribute to a group, including:

- asking good questions,
- explaining concepts,
- helping organize the group members' thoughts,
- recording observations,
- writing sections of the lab report,
- proofreading the lab report,
- etc.

Keeping this in mind, please describe each of your group members' contributions (including your own) by estimating the percentage of your group's total effort each person contributed.