

Note: For assignments like this it is essential to print out your formulation and relevant output. Your printer maximum is 35 pages (I'm not actually sure about this) and additional pages can be purchased in the Statistic Department office. You may find it more convenient to email files to your home account. A description of the solution in terms of the original problem is also essential. The grader will be instructed to mark down assignments which merely turn in output and do not explain their formulation (e.g. what do the variables represent) and the output (for this problem a weekly work schedule).

1. Read the Case Study: Vista Properties. It is bit hard to understand in parts but clear enough when you think about it. Obey the boss!

- a) What LP model do you propose (without including the option)? Does the assumption of linearity raise any doubts about this model?
- b) Explain why the Option should be exercised.
- c) What would you suggest if, when using other data, the LP optimal solution had a hardware store allocated 25 sq.ft.?
- d) What would it cost to allocate 250 square feet for an ice cream stand for Mr. Wassar's nephew?
- e) What is the benefit/cost of the individual store maximum constraints? In other words, why are they present and how do they affect the overall profitability.

2. Consider a large problem formulated as an LP with the exception that a variable y is in the objective function where we wish to impose

$$y = \frac{1}{100}x^2 + 5x - 3 \geq 0$$

You may assume that other constraints force $0 \leq x \leq 5$. You cannot add the equality constraint as given (Why?) in LINDO so what should you do (using LINDO)? Make suggestions and comment.