

Optimization (4.6)

Expected Skills.

At the end of this section, students will be able to:

- build an appropriate mathematical model for word problems. This includes:
 - assign variables to appropriate quantities,
 - identify which numerical information is relevant and/or needed,
 - relate the variables using appropriate equations taking into account the numerical information provided,
- solve word problems using the differentiation techniques seen earlier in the term and determine the optimal solution,
- for a given problem, clearly explain with words, mathematical symbols and equations their reasoning, in particular, what is known, what we are looking for and the steps of the procedure to solve the question.

Pre-Class Activity (ch4-applications-6-optimization-1-pc). The pre-class activity guides the students through a typical optimization exercise. The idea is that since the problem is broken down they will be able to solve it. We then ask them to identify the steps to solve such problems.

Worksheet (ch4-applications-6-optimization-2-ws). The in-class activity consist of having the students solve optimization exercises of different types.

A good way of teaching these would probably be to first do one example on the board, then have the students work on the subsequent exercises (or if you feel your class is strong enough to have the students work directly on the exercises since they have had the pre-class activity). One can have the students work alone, in groups or do a “jigsaw”.