Unit 7: Optimization

Vocabulary and notation

maximum	minimum	maximum over an interval	minimum over an interval
local maximum	local minimum	global maximum	global minimum
extremum	critical point	objective function	second derivative test
marginal revenue	marginal cost	constraint	piecewise continuous

plurals of the terms "maximum", "minimum" and "extremum"

Note: a number of words appear in applications in Chapter 8 that are NOT part of the mandatory vocabulary (e.g., Cobb-Douglas, production level, gamma density, logistic equation, etc.).

Skills

- Procedure for finding extrema of piecewise differentiable functions (Theorem 8.4 / Procedure 8.5)
- Know under what conditions a maximum must exist
- Second derivative test for a maximum versus a minimum
- Parametrizing by a single variable to set up a max/min problem and knowing the interval of allowed values of this variable
- Checking endpoints and points of non-differentiability