

Exploring Lagrangian Optimization

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Contents

1	Hungry Joe	3
2	Utilmaxxing	4
3	Hangry Joe	6
4	He's a Nerd!	7
5	Poor Joe	9
6	Joe's Math	10
7	A Brief Generalization	11
8	Rich Joe	13
9	Business Joe	14
10	Another Brief Generalization	15
11	Concluding Remarks	17

Section 1: The Extreme Value Theorem in \mathbb{R}^2

Chapter 1

Hungry Joe

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Chapter 2

Utilmaxxing

Theorem 1 († The Extreme Value Theorem in \mathbb{R}^2). Suppose that $f(x)$ is continuous on the interval $[a, b]$ then there are two numbers $a \leq c, d \leq b$ so that $f(c)$ is an absolute maximum for the function and $f(d)$ is an absolute minimum for the function.

Section 2: The Extreme Value Theorem in \mathbb{R}^3

Chapter 3

Hangry Joe

Chapter 4

He's a Nerd!

Section 3: The Method of Lagrange Multipliers

Chapter 5

Poor Joe

Chapter 6

Joe's Math

Chapter 7

A Brief Generalization

Section 4: The Cobb-Douglas Production Function

Chapter 8

Rich Joe

Chapter 9

Business Joe

Chapter 10

Another Brief Generalization

**Section 5: The Stuff I Thought I Should Put at the End
but Wasn't Sure if It Was Necessary**

Chapter 11

Concluding Remarks