Amath 456

CALCULUS OF VARIATIONS

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Latest versions of all my course notes are available at **www.tcfraser.com/coursenotes**.

1   Introduction

As a first historical example, we will consider the **Brachistorchrone** first discussed by Johann Bernoulli in 1696. Consider to

$(0,0) \longrightarrow x$

y
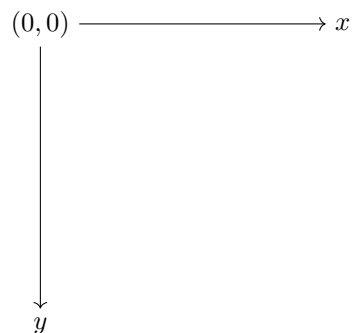
2   Minimization of Functionals

3   Extrema and Derivation of the Euler-Largrane Equations

4   Convexity

5   Extensions of The Basic Problem

6   Hamilton's Principle

7   Optimal Control