### Frequently Used Theorems

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### Foreword

This booklet contains some of the frequently used theorems that I simply cannot remember and always have to waste time searching for the theorem. Proofs may or may not be included depending on how I find them relevant. Note that these theorems are introduced based on the curriculum of my varsity.

For anyone that wishes to grab this pdf for yourself, feel free to do so.

Chapter 1

General

### Chapter 2

# Calculus/Analysis

Theorem 2.0.1 (Mean Value Theorem)

$$\forall a, b \in \mathbb{R}$$

$$f: [a, b] \to \mathbb{R} \text{ differentiable in } (a, b) \Longrightarrow$$

$$\exists c \in (a, b) \quad f'(c) = \frac{f(b) - f(a)}{b - a}$$