

# Speed Running Calculus

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## Author's Notes

This actually isn't the first copy of my discrete math notes...I had an earlier copy that got corrupted, so now I'm just going to constantly upload to GitHub because I'm afraid of them getting wiped again 😭

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These notes are based off of the textbook *Discrete Mathematics and Its Applications* by *Kenneth H. Rosen*, as well as from the lectures of *Serdar Erbatur* from the *Fall 2023* semester.

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If you have any complaints, or suggestions regarding these notes, please email me at [mdn220004@utdallas.edu](mailto:mdn220004@utdallas.edu)

# 1 Propositional Logic

## Definition Proposition

Declarative statements that are either **true** or **false**

Table 1: Examples of propositions

Statement	Proposition?
$1 + 1 = 2$	✓
What class are ya takin?	✗
I am happy	✓

## 1.1 Logical Operators

## 1.2 Propositional Equivalencies

## 1.3 Predicates and Quantifiers

## 1.4 Nested Predicates

## 1.5 Inference Rules and Proofs

# 2 Set Theory

## 2.1 Cardinality

## 2.2 Set Operations

## 2.3 Functions

## 2.4 Floor and nCeiling Functions

# 3 Algorithms