Lecture Notes For: Mathematical Proof

Ali Fele Paranj
alifele@student.ubc.ca

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This lecture note contains the material in the course MATH 220 Mathematical Proof (UBC 2023). However have exapnded the material and examples using the following books:

- Book of Proof (3rd Edition) By Richard Hammack.
- Mathematical Proofs: A Transition to Advanced Mathematics By Chartrand et. al.
- Math proof lectures on YouTube: YouTube Link

Also some useful information can be found here which are the course content of this course in previous years.

- https://personal.math.ubc.ca/~ilaba/teaching/math220_F2015/
- https://secure.math.ubc.ca/php/MathNet/courseinfo.php?session=2020W&t=outline&name=220:101

Some open text books also can be found here in this link: https://aimath.org/textbooks/approved-textbooks/

1 Fundamentals

In this section we will review some basic definitions in the mathematical proof and mathematical logic.

Definition: Axiom

Axiom is a mathematical statement whose truth is accepted without proof.