

Introduction to Higher Mathematics - bottom up

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Friday, December 19th, 20014

Welcome to Higher mathematics

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Chapter 1

Why We Prove Things

In this chapter I explain why proving things can be useful and how to make use of it in your daily life, career and in the larger context of the universe of knowledge

Chapter 2

Understanding logic

In this chapter I give an introduction to logic and the notion of truth.

Chapter 3

A First Technique

In this chapter I give an analysis of a first technique for proving things as well as a number of examples of how to use the technique. With these techniques in hand we will construct our first logical apparatus.

Chapter 4

Adding To Our List Of Techniques

In this chapter I present more techniques with similar analysis. Here we will review the first technique and show how it can be used in conjunction with the other techniques we will learn. With it we will create many more apparatus and look into algorithms that can be used to build up logical operators.

Chapter 5

The Axiomatic Approach

Here we will discuss some major primitives that we will use to construct a number of familiar operators formally. This will inform a larger understanding of how thought works. And provide a way to look beneath the covers of logic.

Chapter 6

Towards A First Theory

Here we will use our primitives to construct larger models and tools. We will go through each set of techniques and show how we can use given results to prove further results through the construction of tools.

Chapter 7

Expanding Our Theory

In this chapter we will increase our list of logical tools and use them to construct even more tools that will be used to produce further results.

Chapter 8

Exploring new roads

In this chapter I will discuss the reasons for doing important mathematics. I will discuss the historical context of mathematics as well as give a number of examples of new maths and how the techniques we have learned so far can be applied. I will close out the text with my thoughts on the future of mathematics and how it can proceed.