University of Illinois Chicago

A Sample Thesis in Mathematics

by

A. Student

A thesis submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

Advisor: Prof. Ada Lovelace

October 1, 2025

Contents

CHAPTER 1

Introduction

This is the introduction chapter. We cite some classic works [**?**, **?**].

1. Motivation

1.1. Historical context. A brief overview of how the problem developed.

$$\int_0^1 f(x)dx = 2 \tag{1}$$

How to solve (1)

1.2. Open questions. Some questions remain open for future work.

2. Outline of the thesis

We summarize the structure of the thesis.

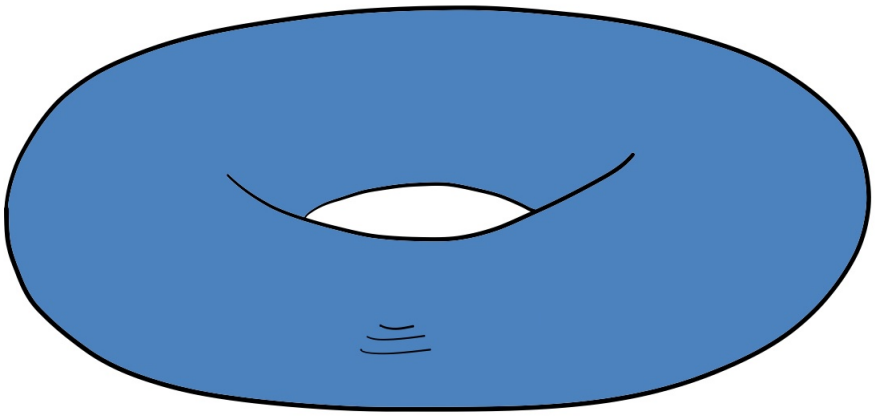

FIGURE 1. This is a torus jpg

CHAPTER 2

Background

This chapter gives necessary background.

1. Group theory

DEFINITION 2.1. A group is a set G with a binary operation satisfying closure, associativity, identity, and inverses.

THEOREM 2.2. *Every finite subgroup of the multiplicative group of a field is cyclic.*

PROOF. This is a standard result from algebra. □

2. Linear representations

As explained in Serre's book [**?**], representation theory plays a key role.

CHAPTER 3

Main Results

Here we present the main contributions of the thesis.

1. First main result

Statement and proof go here.

2. Second main result

Another significant theorem.

APPENDIX A

Technical Lemmas

Here we collect some supporting lemmas.