Geometric Group Theory

Notes by Zach Schutzman

University of Pennsylvania, Fall 2017

Introduction

Taking notes and working through proofs is the best way for me to teach myself advanced mathematics. Typing (and thoroughly backing up) notes is the best way to make sure they are preserved and readable well into the future. As such, these notes are from my process of working through *Topics in Geometric Group Theory* by Pierre de la Harpe.

These notes are being written intermittently, as learning Geometric Group Theory is something that must come after my required coursework, research, and teaching. I am using the editor TeXstudio. The template for these notes was created by Zev Chonoles and is made available (and being used here) under a Creative Commons License.

I am responsible for all faults in this document, mathematical or otherwise; any merits of the material here should be credited to Professor de la Harpe and those mathematicians he references.

Please email any corrections or suggestions to `ianzach+notes@seas.upenn.edu`.

Chapter 1

What is Geometric Group Theory?

The Gauss Circle Problem

Pólya's Recurrence Theorem