Number Theory and Abstract Algebra for Programmers

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1 Introduction

Not long ago, it was thought that number theory and abstract algebra were the domain of pure mathemeticians with no applications to the real world. Now, they are major subects of interest with applications in cryptograhy, electronic currency, coding theory, and wireless communication.

2 In the Beginning there was Euclid

Let's start at the beginning. Almost every course in number theory starts with Euclid; specifically the greatest common divisor algorithm (GCD). Specifically the GCD algorithm is outlined in Euclid's Elements, Book VII, Proposition II. Here is how Euclid thought of the GCD.

3 And the there were groups

This chapter is kind of cyclic.