

Introduction

What is number theory?

Elementary number theory is the study of integers, especially the positive integers. A lot of the course focuses on prime numbers, which are the multiplicative building blocks of the integers. Another big topic in number theory is integer solutions to equations such as the Pythagorean triples $x^2 + y^2 = z^2$ or the generalization $x^n + y^n = z^n$. Proving that there are no integer solutions when $n > 2$ was an open problem for close to 400 years.

The first part of this course reproves facts about divisibility and prime numbers that you are probably familiar with. There are two purposes to this: 1) formalizing definitions and 2) starting with the situation you understand before moving to the new material.

Instructor Notes: Go over syllabus highlights: Deadlines, make-up policy, in-class work, reading assignments.
