

Introduction to Number Theory

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These lectures will contain some introductory topics in number theory that build upon a first course in elementary number theory. The emphasis is on two main topics, namely (1) continued fractions and their applications to Diophantine approximation and a class of Diophantine equations; and (2) analytic methods applied to the distribution of prime numbers. The contents of the individual lectures will be as follows:

- Simple continued fractions and best approximations.
- Periodic simple continued fractions and Pell equations.
- Chebyshev's prime number theorem.
- Basic properties of the Riemann zeta function.
- Euler's formula for $\zeta(2k)$.