# Study of Number Theory and relationship between different types of numbers and study of types of questions that can be solved

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**Introduction :** Number theory is the study of the set of positive whole numbers 1, 2, 3, 4, 5, 6, 7, . . . , which are often called the set of natural numbers. We will especially want to study the relationships between different sorts of numbers. Since ancient times, people have separated the natural numbers into a variety of different types . Number theory, also known as higher arithmetic, is a branch of mathematics concerned with the properties of integer s, rational number s, irrational number s, and real number s. Sometimes the discipline is considered to include the imaginary and complex numbers as well.

This is study of the integers, is one of the oldest and richest branches of mathematics. Its basic concepts are those of divisibility, prime numbers, and integer solutions to equations -- all very simple to understand, but immediately giving rise to some of the best known theorems and biggest unsolved problems in mathematics. The Theory of Numbers is also a very interdisciplinary subject. Ideas from combinatorics (the study of counting), algebra, and complex analysis all find their way in, and eventually become essential for understanding parts of number theory. Indeed, the greatest open problem in all mathematics, the Riemann Hypothesis, is deeply tied into Complex Analysis. But never fear, just start right into *Elementary Number Theory*, one of the warmest invitations to pure mathematics, and one of the most surprising areas of applied mathematics.

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