

The Prime Number Theorem, formulated by mathematician Jacques Hadamard and independently by Charles de la Vallée Poussin in the late 19th century, describes the asymptotic distribution of prime numbers. It states that as numbers become larger, the density of primes among all natural numbers approaches  $1/\ln(n)$ , where  $\ln(n)$  is the natural logarithm of  $n$ . In simpler terms, it suggests that as numbers increase, prime numbers become less frequent relative to the total number of integers, with  $\ln(n)$  providing a rough estimate of the number of primes less than  $n$ . This theorem is fundamental in understanding the distribution of prime numbers.