

# The Extraordinary Lambert Prime Number Formula: Unveiling the Mysteries of Prime Numbers!

## 1. The Function distinction of the Prime numbers:

$$*s = \left\lfloor \frac{\sqrt{N} + 1}{2} \right\rfloor$$

$$\Delta_{N(n)} = \left\lfloor \frac{1 + \left\lfloor \frac{3}{2n+1} \right\rfloor}{1 + \sum_{k=1}^{*s} \left\lfloor \frac{2k+1}{2n+1} \left\lfloor \frac{2n+1}{2k+1} \right\rfloor \right\rfloor} \right\rfloor = \begin{cases} 1 & \text{if } N = 2n + 1 \text{ is prime} \\ 0 & \text{if } N = 2n + 1 \text{ is Composite.} \end{cases}$$

For Example 1:

$$N = 2n + 1 = 101 ; \quad *s = 5 \quad \therefore \Delta_{N(n)} = \left\lfloor \frac{1 + 0}{1 + \sum_{k=1}^5 \left\lfloor \frac{2k+1}{101} \left\lfloor \frac{101}{2k+1} \right\rfloor \right\rfloor} \right\rfloor = 1$$

n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	...	50	...
N=2n+1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	...	101	...
$\Delta_{N(n)}$	1	1	1	0	1	1	0	1	1	0	1	0	0	1	1	...	1	...

## 2. The Formula of The Prime numbers generator:

$$P(n) = (2n + 1 - p)\Delta_{N(n)} + p = p \left( \frac{2n + 1}{p} \right)^{\Delta_{N(n)}} = \begin{cases} N & \text{if } N = 2n + 1 \text{ is prime} \\ p & \text{if } N = 2n + 1 \text{ is Composite (p : arbitrary prime number)} \end{cases}$$

For Example 2:

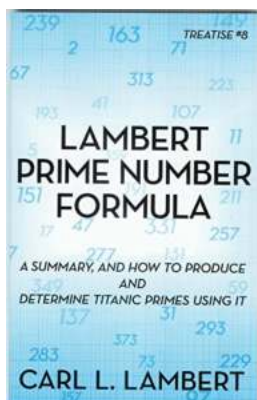
n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	...
P(n)	3	5	7	p	11	13	p	17	19	p	23	p	p	29	31	...

Are you fascinated by the enigmatic world of prime numbers? Have you ever wondered about the underlying patterns and mysteries they hold? Look no further! In this treatise, we will delve deep into the extraordinary Lambert Prime

Number Formula, a groundbreaking mathematical expression that promises to unlock the secrets hidden within prime numbers. Brace yourself for an exhilarating journey into the realm of numbers and unveil the mysteries of prime numbers.

## Understanding the Lambert Prime Number Formula

The Lambert Prime Number Formula, named after the eminent mathematician Johann Heinrich Lambert, is a groundbreaking mathematical expression that reveals the distribution and patterns of prime numbers. Lambert's formula provides a way to estimate the number of primes less than a given value, thus shedding light on the behavior and characteristics of these unique numbers.



### Lambert Prime Number Formula: Treatise #8

by Tom McNichol (Kindle Edition)

★★★★☆ 4.3 out of 5

Language : English  
File size : 4368 KB  
Text-to-Speech : Enabled  
Screen Reader : Supported  
Enhanced typesetting : Enabled  
Print length : 43 pages  
Lending : Enabled  
X-Ray for textbooks : Enabled



Formally defined as  $L(x) = \psi(x) + \psi(\sqrt{x}) - 1$ , where  $\psi(x)$  represents the second Chebyshev function, the Lambert Prime Number Formula offers a powerful tool to explore prime numbers with unparalleled precision. It enables researchers and mathematicians to discern the gaps between consecutive prime

numbers, understand their distribution across the number line, and potentially uncover new insights into the nature of these peculiar integers.

## **Why Prime Numbers Matter**

Prime numbers have fascinated mathematicians, researchers, and even ordinary individuals for centuries, mainly due to their unique properties and their vital role in cryptography and computer algorithms. Prime numbers, divisible only by 1 and themselves, serve as the building blocks of the natural number system.

The study of prime numbers is not merely an abstract pursuit; it has significant practical implications in various scientific fields. Cryptography relies heavily on the properties of prime numbers to ensure secure communication and data transmission. Prime numbers are also the fundamental components of modern computer algorithms used in data encryption, data compression, and code-breaking.

Moreover, prime numbers have captured the imagination of countless mathematicians and number theorists over the years. From ancient civilizations to modern researchers, the quest to understand the patterns and distribution of primes has been an ongoing exploration, leading to numerous discoveries and advancements in mathematics.

## **Unveiling the Mysteries of Prime Numbers**

The Lambert Prime Number Formula promises to shed new light on the mysteries surrounding prime numbers. By utilizing Lambert's expression and analyzing the distribution of primes, mathematicians and researchers can gain valuable insights into the behavior and patterns of these special numbers.

One of the most intriguing aspects of prime numbers is their apparent randomness and a lack of discernible patterns. Although prime numbers become sparser as we move higher along the number line, they do exhibit certain regularities, such as prime gaps and the overall density distribution.

Using the Lambert Prime Number Formula, mathematicians have been able to estimate the average gap between consecutive primes, offering valuable clues to the distribution and behavior of primes on a larger scale. The formula also provides a means to predict the likelihood of finding a prime number within a specific range, a valuable tool for researchers in areas such as number theory and cryptography.

## **Applications and Implications**

Understanding the Lambert Prime Number Formula has far-reaching implications across various fields. Mathematics, as the backbone of countless scientific disciplines, benefits greatly from this formula. Researchers working on number theory, cryptography, and computer science can leverage its power to gain deeper insights into prime numbers and create more efficient algorithms.

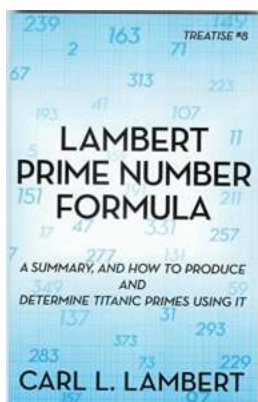
Furthermore, the Lambert Prime Number Formula may open doors to new mathematical discoveries. Exploring the patterns and distribution of primes utilizing this formula could potentially unveil hidden connections between seemingly unrelated mathematical concepts, leading to breakthroughs in other mathematical branches.

## **In**

The Lambert Prime Number Formula represents a significant milestone in the study of prime numbers. Through its use, the enigmatic world of primes unveils some of its mysteries, offering insights into their patterns, distribution, and

behavior. Whether in the realm of mathematics or its practical applications in cryptography and computer science, the Lambert Prime Number Formula holds immense potential to advance our understanding of numbers and shape future discoveries.

Embrace the extraordinary Lambert Prime Number Formula and embark on a fascinating journey into the captivating universe of prime numbers!



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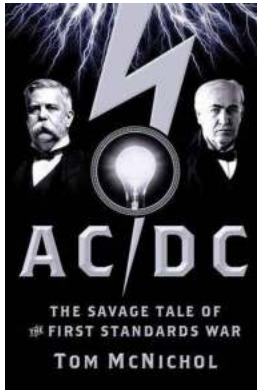
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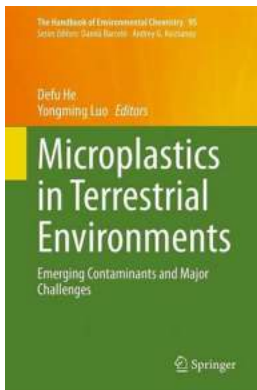


This work is the result of over 60 years of Carl L. Lambert's hobby of studying and playing with prime numbers. The Lambert Prime Number Formula has not yet been peer-reviewed, nor has its production of titanic numbers, but the reader is free to create titanic numbers with it and submit all to a review body of his/her choosing. There are substantial prizes being offered in the many thousands of dollars for being the first in several categories. Hopefully this work will help those who decline to limit their titanic prime discoveries to only the Mersenne primes.



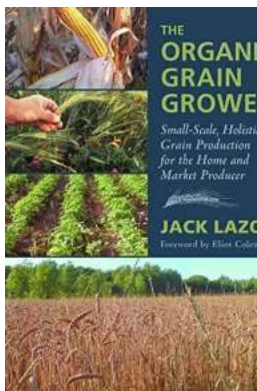
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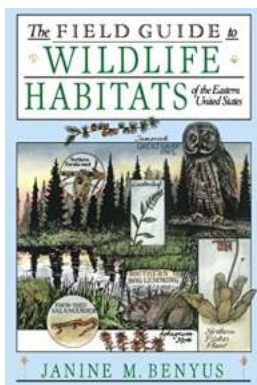
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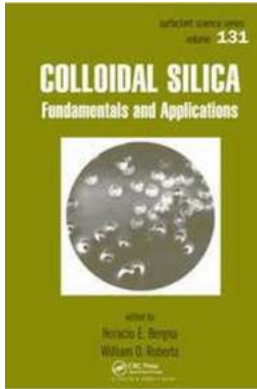
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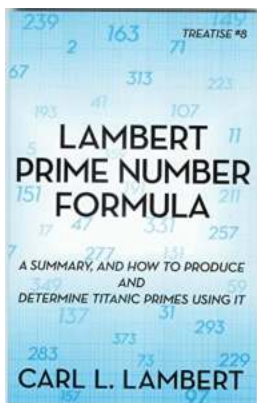
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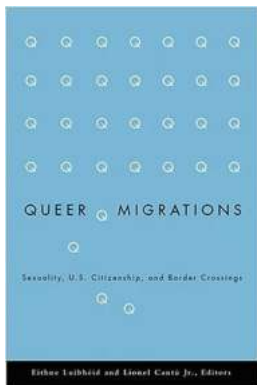
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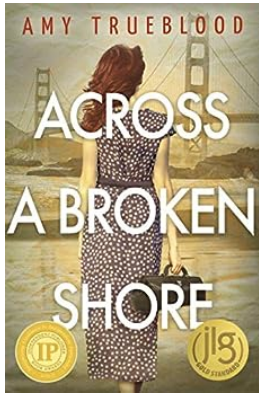
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