

The Number theory: the Strobogrammatic number

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What can one do without numbers? Communication should be impossible! Numbers play an indispensable role in human communication, economics, predictions, and many other areas of human endeavor. Furthermore, mathematics without numbers is an empty science. The idea to undertake a mathematical voyage of discovery and present numbers in theory and practice was born some years ago. The basic assumption is the historic sequence of primes, naturals, integers, decimals, rationals, reals, imaginary numbers, complex and hyper-complex numbers. They serve as the basis for hundreds of number sets with their own specifications. They come across as personal identification numbers (PINs), bank account numbers, ISBN numbers, passwords, cryptography, hash numbers in data structures and algorithms, data mining, numbers in nature such as wind, earthquakes, volcanos, and speeds of moving objects. However, the most striking numbers belong to the prime numbers. A small but famous category of these numbers are the Mersenne primes. The first number in this category was found in 500 BC and the 51th was found only last year 2018 by using powerful computers and elaborate programming. These and many other indications gave the impulse for a research program that is reported in this research paper. The research was completed this year 2019 that focused mainly on 619 sets of numbers. The number 619 is a Strobogrammatic number. It stays the same when it is rotated 180 degrees. The number was set as a goal to discover 619 sets of numbers. There was no indication the discovery could be realized. But it was feasible! To get an impression about the final result, this paper presents a randomly chosen sets of numbers in an alphabetical sequence, which is the real essence and glamour of number sets in both theory and practice.

Keywords: Mathematics; mersenne primes; number theory; strobogrammatic number.