PRIME NUMBER PATTERNS

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ABSTRACT

This dissertation focuses on studying the patterns in the prime number distribution. It visualizes the distribution of prime numbers in a graphic manner through the usage of the Microsoft Excel software. This study is restricted to the first 20,000 primes. A list of the prime numbers is first obtained from Project Gutenberg online. By performing several methods of transformations, which are gaps between the first and second numbers, logarithm of the numbers, progressive ratio, progressive mean and progressive standard deviation, the transformed data are graphed in forms of scatter charts and radar charts. These charts are analyzed and compared with control data, which are number series that are increasing because prime numbers is an increasing number series. Prime numbers have been known to appear randomly, however, through the study of the graphs, it shows some regularity. This regularity is shown when a radar plot of primes, its progressive means and progressive standard deviation display a shell-like formation. All in all, although prime numbers seem to be scattered and occur in a somewhat random form, this dissertation shows that there are more underlying patterns with regularity that have not been totally discovered.