Title: 3-Golden Pattern
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Abstract: This paper develops the divisibility of the so-called **Simple Primes numbers-3**, the discovery of a pattern to infinity, the demonstration of the inharmonics that are 2,3, and the harmony of 1. The discovery of infinite harmony represented in fractal numbers and patterns. This is a family before the prime numbers. This paper develops a formula to get simple prime number-3 and simple composite number-3
The simple prime numbers-3 is known as the **5-rough numbers**.

Keywords: Golden Pattern, 5-Rough number, divisibility, Prime number, composite number.

Simple Prime Number-3

In order to understand how simple Primes numbers work in this text, the approach is partial, only use divisible digits from 1 to 3.
For a number to be considered Simple Prime number-3 by dividing it by 2, 3, must give a decimal result.
Simple Prime numbers-3 are those that are only divisible by themselves and by unity. Those that can be divided by other numbers from (2 to 3) are called Simple composite number-3
Positive integers that have no prime factors less than 5.

Simple Prime Number $\in \mathbb{Z}$
The simple prime numbers-3 maintain equivalent proportions in the positive numbers and also in the negative numbers.
In this paper the demonstrations are made with numbers $\in \mathbb{N}$

Introduction

This work is the continuation of the **Golden Pattern** papers published in http://vixra.org/abs/1801.0064, in which the discovery of a pattern for simple prime numbers has been demonstrated (For a number to be considered Simple Prime number-7 by dividing it by 2, 3, 4, 5, 6, 7, 8, 9, must give a decimal result.). If it resulted in integers numbers, it would be simple composite number-7.
Reference A008364 The On-Line Encyclopedia of Integer Sequences.

In this paper we continue to develop demonstrations in which it is easy to see and with very simple accounts that the simple prime numbers of the 3-Golden Pattern maintain impressive proportions and equivalences.
All the numbers are kept in a precise order, forming equivalent sums and developing an infinite harmony.

Special cases

In this text the N ° 2, 3 are not Simple Prime number-3. The calculations and proportions prove it and its reductions also. We can observe in the table that these numbers are simple composite number-3 since in the following patterns they work in that way.

The number 1 is a Simple prime number-3. It is a number that generates balance and harmony, it is a necessary number, it is the first number of the pattern, but it is also the representative of the first number of each pattern to infinity.

The 1 is Simple Prime Number, since the subsequent reductions in the Patterns to infinity in its place always reduce to 1 and maintain a precise equivalence and proportions.
19 = 1 This is the first Number of Pattern 2
37 = 1 This is the first Number of Pattern 3

The sums of the digits of these examples is 1.
19=1+9=**10** =1+0= **1**
37=3+7= **10** =1+0= **1**

Construction of the 3-Golden Pattern

The product of the prime numbers up to number 3 inclusive, multiplied by 3, generates a result that indicates how many numbers there are in the 3-Golden Pattern. (The number 3 arises from the 3 different reductions that occur in each of its sequences: in A=6 * n + 1 (reductions 1,4,7) in B=6 * n-1 (reductions 2,5,8)

Example

(2*3)*3 = 6*3 = **18**

3-Golden Pattern

The pattern found is from 1 to 18. It repeats itself to infinity respecting that proportion every 18 numbers. The 3-Golden Pattern is formed by a rectangle of 6 columns x 3 rows.
The simple prime numbers-3 fall in only two columns in the one of the 1 (Column A) and the one of the (column B) They are painted yellow. The rest of the columns are simple composite numbers-3. These are painted by red color.

The 3-Golden Pattern is divided into three Triplet Sectors. From 1 to 6, from 7 to 12 and from 13 to 18 proportional. These are identical, the only variable are their reductions. Which combine to the left in combinations of 1,4,7 and to the right in combinations of 2,5,8. We can see that each sector works as a pattern with the following. The same happens with the 3-Golden Pattern.

Example:

3-Golden Pattern (1 to 18)

Sector 1 (1 to 6)
Sector 2 (7 to 12)
Sector 3 (13 to 18).

Red: Reduction (sum of the digits of simple prime numbers-3)

.Red	Sector 1						Red
1	1	2	3	4	5	6	5

Red	Sector 2						Red
4	7	8	9	10	11	12	2

Red	Sector 3						Red
7	13	14	15	16	17	18	8

Graph table 1

In each **Sector** there are 2 simple prime numbers-3. And in the Total Pattern there is the triple, then there are 6 Simple Primes numbers-6.
Nps= Simple Prime Numbers-3

In columns A there are composite numbers greater than 3 and simple prime numbers under the sequence $6 * n + 1$
In column B there are composite numbers greater than 3 and simple prime numbers under the sequence $6 * n - 1$

Throughout this text we will work with these two columns mainly.

1) Addition Simple Primes Number-3 by **Sector.**

Nps= Simple prime Numbers-3

$$Sector\ 1 \sum_{Nps\geq 1}^{6} 2\ Simple\ \text{prime}\ numbers - 3 = 6$$

$$Sector\ 2 \sum_{Nps\geq 7}^{12} 2\ Simple\ \text{prime}\ numbers - 3 = 18$$ Difference 12

$$Sector\ 3 \sum_{Nps\geq 13}^{18} 2\ Simple\ \text{prime}\ numbers - 3 = 30$$ Difference 12

Total

$$3 - Golden\ Pattern \sum_{Nps\geq 1}^{18} 6\ Simple\ Prime\ numbers - 3 = 54$$

Conclusion 1

Each SECTOR is multiple x3, x5 with respect to the first. Also to infinity if we are adding 18 next numbers (x7, x9, x11, etc.)

The differences 12 are repeated for every 6 numbers. The difference is equal to the sum of **simple prime number-3 of Sector 1** by two.
The total is equal to the sum of **simple prime number-3 of Sector 1** by 9.
Total 54=6*9

3-Golden Pattern, Simple Prime number-3

We can observe how the numbers are arranged in two columns, to the left the simple prime numbers-3 are reduced to combinations of 1,4,7 (column A) and to the right to combinations of 2,5,8 (column B). The reductions are formed by the sum of their digits.
This pattern works every 18 numbers. This works to infinity. If we started from 19 we would obtain the following table up to 36 in which we would find that the locations of the yellow colors (simple prime numbers-3) and red (Simple composite numbers-3) coincide in 100% of the cases.
The 3-Golden pattern keeps the colors in the same location and also the numbers match their reductions.

Example

1=1
19= 1+9=10, 1+0=**1**

Red: Reduction (sum of the digits of simple prime numbers-3)

Red	3- Golden Pattern						Red
1	1	2	3	4	5	6	5
7	7	8	9	10	11	12	2
4	13	14	15	16	17	18	8

Red	next Pattern						Red
1	19	20	21	22	23	24	5
7	25	26	27	28	29	30	2
4	31	32	33	34	35	36	8

Graph table 2

Reference A007310The On-Line Encyclopedia of Integer Sequences

2) Simple Prime Numbers-3 by Pattern

Nps= Simple Prime Numbers-3

$$\text{Golden Pattern} - 3 \sum_{Nps \geq 1}^{18} 6\, Simple\ Prime\ numbers - 3$$

$$Pattern\ 2 \sum_{Nps \geq 1}^{36} 12\, Simple\ Prime\ numbers - 3$$

$$Pattern\ 3 \sum_{Nps \geq 1}^{54} 18\, Simple\ Prime\ Numbers - 3$$

Conclusion 3

It is repeated to infinity every 18 numbers. The 3-Golden Pattern is multiplied by x2, x3, x4, x5, etc with respect to the following patterns.

3) Addition Simple Primes Numbers-3 by Pattern

Nps= Simple Prime Numbers-3

$$3 - \text{Golden Pattern} \sum_{Nps \geq 1}^{18} = 54$$

$$Pattern\ 2 \sum_{Nps \geq 19}^{36} = 162 \qquad \text{Difference with the } \mathbf{3 - Golden\ Pattern\ is}\ \text{x3}$$

$$Pattern\ 3 \sum_{Nps \geq 37}^{54} = 270 \qquad \text{Difference with the } \mathbf{3 - Golden\ Pattern}\ \text{is x5}$$

Conclusion 4

The model continues to multiply and is repeated to infinity every 18 numbers. (Odd Multiples for totals, x3, x5, x7,x9, etc.)
Difference with the previous value in all cases is 108. The difference 108 are repeated for every 18 numbers.
The difference is equal to the sum of simple prime number-3 of **3-Golden Pattern** by two.

4) Addition Simple Primes Numbers-3 by Pattern in total

Nps= Simple Prime Numbers-3

$$\text{6 simple prime number in 3} - \text{Golden Pattern} \sum_{Nps \geq 1}^{18} = 54$$

$$\text{12 simple prime number} - 3\ \ to\ Pattern\ 2 \sum_{Nps \geq 1}^{36} = 216$$

Difference with the $\mathbf{3 - Golden\ Pattern}$ is $\mathbf{x\ 4}$

$$18 \text{ simple prime number} - 3 \ \ to\ Pattern\ 3 \sum_{Nps \geq 1}^{54} = 486$$

Difference with the **3 − Golden Pattern** is **x 9**

$$24 \text{ simple prime number} - 3 \ \ to\ Pattern\ 4 \sum_{Nps \geq 1}^{72} = 864$$

Difference with the **3 − Golden Pattern** is **x 16**

$$30 \text{ simple prime number} - 3 \ \ to\ Pattern\ 5 \sum_{Nps \geq 1}^{90} = 1350$$

Difference with the **3 − Golden Pattern** is **x 25**

Conclusion 5

The model continues to multiply and is repeated to infinity every 18numbers. (Odd Multiples for totals, x4, x9, x16,x 25, etc.).

The differences work with the formula x^2

Example

3-Golden Pattern $1^2 = \mathbf{1}$

Pattern 2= 2^2=**4**

Pattern 3= $3^2 = \mathbf{9}$

Pattern 4= $4^2 = \mathbf{16}$

Pattern 5= 5^2= **25**

Demonstration 1
Formula to get simple prime number-3

Example and demonstration of the formula is divided into 2 columns.

On the left we will calculate the simple prime number-3 located in (A), on the right we will calculate the prime numbers located in (B).

$P_{3\,(A)}$= $S.Prime\ numbers - 3\ in\ column(A)$	$P_{3\,(B)}$ = $S.Prime\ numbers - 3\ in\ column\ (B)$
$$P_{3\,(A)} = (6 * n_{n\geq 0} + 1)$$ **We get the following Simple prime numbers-3.** $P_{3\,(A)} = 1,7,13,19,25,31,37,43,49,55,61, \dots.$	$$P_{3\,(B)} = (6 * n_{n>0} - 1)$$ **We get the following Simple prime numbers-3.** $P_{3\,(B)} = 5,11,17,23,29,35,41,47,53,59,65, \dots$

Reference The On-Line Encyclopedia of Integer Sequences

Final conclusion

The 3-Golden Pattern is the confirmation of an order to infinity in equilibrium, each column is in harmony and balance with the other, the demonstration of the inharmony of 2, 3is very great. The number 1 is necessary and generates balance. Simple Prime Numbers-3 are a family prior to the Classical Prime Numbers.
The sum of the simple prime numbers-3 demonstrate incredible proportions that indicate that they have a fractal behavior.
The reductions of the 3-Golden Pattern are infinitely repeated every 18 numbers.
The proportions of the 3-Golden pattern are exactly equal and proportional to the 7-golden pattern. (http://vixra.org/abs/1801.0064), and other patterns with different prime numbers.
The formula for obtaining the simple Prime numbers-3 works successfully.
I can affirm that there are infinite different patterns with different prime divisors, which maintain a great harmony between columns A, B, they are always in balance, they present infinite proportions, fractal symmetries, All patterns have the same procedure. They are all different and they are very linked.

This Paper is extracted from my book The Golden Pattern II
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