Abstract: This article develops a formula for calculating the simple prime numbers-7 and the simple composite numbers-7 of the Golden Pattern.

Keywords: 11-Rough number, divisibility, Simple prime number, Simple composite number, Golden Pattern.

Introduccion

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.

Special cases
In the paper of the Golden Pattern (http://vixra.org/abs/1801.0064) explains how special are the Number. 2, 3, 5, 7, These are not simple prime numbers-7 The calculations and proportions prove it and its reductions also. The number 1 is a Simple prime number-7. 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. Graph 3 and 4 of this paper demonstrate this.

Formula to get Simple Prime numbers-7

This formula calculates all the simple prime numbers -7. The formula for calculating the Simple Prime numbers-7 is based on Zeolla Gabriel's paper on how to obtain prime numbers. http://vixra.org/abs/1801.0093

Demonstration 1
The formula is divided into 2 columns.
On the left we will calculate the simple prime number-7 located in (A), on the right we will calculate the prime numbers located in (B).

<table>
<thead>
<tr>
<th>( P_7(A) ) = Simple prime numbers (-7 ) in column (A)</th>
<th>( P_7(B) ) = Simple prime numbers (-7 ) in column (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( Z = numbers \geq 0 )</td>
<td>( Z = numbers \geq 0 )</td>
</tr>
<tr>
<td>( P_7(A) = (6 \times n \begin{cases} n \geq 0 &amp; n \neq 4 + 5 \times Z \ n \neq 1 + 7 \times Z \end{cases} + 1) )</td>
<td>( P_7(B) = (6 \times n \begin{cases} n &gt; 1 &amp; n \neq 6 + 5 \times Z \ n \neq 6 + 7 \times Z \end{cases} - 1) )</td>
</tr>
<tr>
<td>( n \neq 1,4,8,9,14,15,19,22,24, \ldots \ldots )</td>
<td>( n \neq 6,11,13,16,20,21,26,27, \ldots \ldots )</td>
</tr>
<tr>
<td>Using values correct for: ( n = 0,2,3,5,6,7,10,11,12,13, \ldots \ldots )</td>
<td>Using correct values for ( n = 2,3,4,5,7,8,9,10,12,14,15, \ldots \ldots )</td>
</tr>
<tr>
<td>We get the following Simple prime numbers-7.</td>
<td>We get the following Simple prime numbers-7.</td>
</tr>
<tr>
<td>( P_7(A) = 1,13,19,31,37,43,61,67,73,79,97, \ldots \ldots )</td>
<td>( P_7(B) = 11,17,23,29,41,47,53,59,71,83,89,101, \ldots \ldots )</td>
</tr>
</tbody>
</table>

Reference: A008364 The On-Line Encyclopedia of Integer Sequences

Formula to get Simple Composite numbers-7 (inside the sequence \( 6 \times n \pm 1 \))

Composite numbers divisible by numbers greater than 3.

This formula calculates all the simple composite numbers -7.

The formula for calculating the Simple composite numbers-7 is based on Zeolla Gabriel's paper on how to obtain prime numbers. [http://vixra.org/abs/1801.0093](http://vixra.org/abs/1801.0093)

Demonstration 2

The formula is divided into 2 columns A and B.

On the left we will calculate the simple composite number-7 located in (A), on the right we will calculate the composite numbers located in (B).

\( A = 6 \times n + 1 \)
\( B = 6 \times n - 1 \)

<table>
<thead>
<tr>
<th>( Nc_7(A) ) = Simple composite numbers (-7 ) in column (A)</th>
<th>( Nc_7(B) ) = Simple composite numbers (-7 ) in column (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( Z = numbers \geq 0 )</td>
<td>( Z = numbers \geq 0 )</td>
</tr>
<tr>
<td>( Nc_7(A) = (6 \times n \begin{cases} n = 4 + 5 \times Z &amp; n = 1 + 7 \times Z \end{cases} + 1) )</td>
<td>( Nc_7(B) = (6 \times n \begin{cases} n = 1 + 5 \times Z &amp; n = 6 + 7 \times Z \end{cases} - 1) )</td>
</tr>
<tr>
<td>( n = 1,4,8,9,14,15,19,22, \ldots \ldots )</td>
<td>( n = 1,6,11,13,16,20,21, \ldots \ldots )</td>
</tr>
<tr>
<td>We get the following Simple Composite numbers-7.</td>
<td>We get the following Simple Composite numbers-7.</td>
</tr>
<tr>
<td>( Nc_7(A) = 7,25,49,55,85,91,115,133, \ldots \ldots )</td>
<td>( Nc_7(B) = 5,35,65,77,95,119,125,155,161, \ldots \ldots )</td>
</tr>
</tbody>
</table>
The Golden pattern is constructed by the product of the prime numbers less than or equal to 7. Then these are multiplied by 3. (Since each column has 3 variables in its reductions, the result will be the numbers that exist per pattern.

\[(2\times3\times5\times7)\times3=630\]

The pattern found is from 1 to 630. It repeats itself to infinity respecting that proportion every 630 numbers. The 7-Golden Pattern is formed by a rectangle of 6 columns x 105 rows.

The simple prime numbers-7 fall in only two columns in the one of the 1 (Column A) and the one of the 5 (column B) They are painted yellow. The rest of the columns are simple composite numbers-7. (In Columns A, B composite numbers divisible by numbers greater than 3). These are painted by red color. The rest of the columns are composite numbers divisible by 2 and 3 to infinity.

### Graphical chart of the reduced 7-Golden pattern

<table>
<thead>
<tr>
<th></th>
<th>Simple Prime Numbers-7 in yellow</th>
<th>Simple Composite number-7 in Red</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td></td>
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<tr>
<td>7</td>
<td>8</td>
<td></td>
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<tr>
<td>97</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>103</td>
<td>104</td>
<td></td>
</tr>
</tbody>
</table>
In the vertices of the triangles on the line are the composite numbers 7. The rest are Simple Prime numbers 7.
The base triangles 5 form composite numbers multiples of 5.
The base triangles 7 form the numbers composite of multiples of 7.

Sequence $A = (6 * n + 1)$

$n \geq 0$

Reference [A016921](The On-line Encyclopaedia of Integer Sequences)

In the vertices of the triangles on the line are the composite numbers 7. The rest are Simple Prime numbers 7.
The base triangles 5 form composite numbers multiples of 5.
The base triangles 7 form the numbers composite of multiples of 7.

Sequence $B = (6 * n - 1)$

$n \geq 1$

Reference [A016969](The On-Line Encyclopaedia of Integer Sequences)
Conclusion
The 7-Golden Pattern is the confirmation of an order to infinity in equilibrium. This formula demonstrates how to calculate all simple prime numbers-7 and simple composite numbers-7. The graphics are a revealing scheme of how these numbers are distributed.


References
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A008364 The On-Line Encyclopedia of Integer Sequences

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