Recursive Scheme To Find Prime Numbers

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Abstract

In this research investigation, the author has presented an algorithmic '*Scheme To Generate Prime Numbers*'.

Theory

1. The Sequence of Primes PS can be decomposed into a Union of three distinct sets PS_x, PS_y and PS_z where PS_x is that Sub-Set of the Sequence of Primes PS which can be thought of to lie on the x Dimension, PS_y is that Sub-Set of the Sequence of Primes PS which can be thought of to lie on the y Dimension, PS_z is that Sub-Set of the Sequence of Primes PS which can be thought of to lie on the z Dimension,
2. If x_i, y_j and z_k are the i^{th}, j^{th} and k^{th} Primes respectively of PS_x, PS_y and PS_z, then the Recursive Relations between the Elements of PS_x, PS_y and PS_z is given by
3. $x_i + y_j - z_k = z_{k+r}$

   Using

i	j	k
1	1	1
2	2	2
3	3	3
1	2	3
2	3	1
3	1	2
1	3	2
2	1	3
3	2	1

We find all values of r such that the above equation is true.

Now, we know

$j = {}^1f_1(i),\ {}^2f_1(i), \dots\dots\dots, {}^{\alpha_1}f_1(i)$

$k = {}^1f_2(i),\ {}^2f_2(i), \dots\dots\dots, {}^{\alpha_2}f_2(i)$

$r = {}^1f_3(i),\ {}^2f_3(i), \dots\dots\dots, {}^{\alpha_3}f_3(i)$

In a similar fashion, we write

$$z_{k+r} + y_j - x_i = x_{i+s}$$

We now know,

$$s = {}^1f_4(i),\ {}^2f_4(i), \ldots\ldots\ldots, {}^{\alpha_4}f_4(i)$$

And also

$$z_k + y_j - x_i = x_{i+t}$$

We now know

$$t = {}^1f_5(i),\ {}^2f_5(i), \ldots\ldots\ldots, {}^{\alpha_5}f_5(i)$$

Again, in a similar fashion, we write

$$y_j + x_i - z_k = z_{k+u}$$

We now know

$$u = {}^1f_6(i),\ {}^2f_6(i), \ldots\ldots\ldots, {}^{\alpha_6}f_6(i)$$

Again, in a similar fashion, we write

$$y_j + x_i - z_{k+r} = z_{k+v}$$

We now know

$$v = {}^1f_7(i),\ {}^2f_7(i), \ldots\ldots\ldots, {}^{\alpha_7}f_7(i)$$

Again, in a similar fashion, we write

$$y_j + x_{i+s} - z_k = z_{k+p}$$

We now know

$$p = {}^1f_8(i),\ {}^2f_8(i), \ldots\ldots\ldots, {}^{\alpha_8}f_8(i)$$

Again, in a similar fashion, we write

$$y_j + x_{i+s} - z_{k+r} = z_{k+q}$$

We now know

$$q = {}^1f_9(i),\ {}^2f_9(i), \ldots\ldots\ldots, {}^{\alpha_9}f_9(i)$$

Again, in a similar fashion, we write

$$y_j + x_{i+t} - z_k = z_{k+a}$$

We now know

$$a = {}^1f_{10}(i),\ {}^2f_{10}(i), \ldots\ldots\ldots, {}^{\alpha_{10}}f_{10}(i)$$

Again, in a similar fashion, we write

$$y_j + x_{i+t} - z_{k+r} = z_{k+b}$$

We now know

$$b = {}^1f_{11}(i),\ {}^2f_{11}(i), \ldots\ldots\ldots, {}^{\alpha_{11}}f_{11}(i)$$

It can be observed that ${}^{\alpha_{\xi}(\xi)}f_{\xi}(i)$

for $\xi = 1 \; to \; 11$

give us the Recursive Relations for

$r = s = t = u = v = p = q = a = b = 1 \; and/or \; 2 \; and/or \; -1$

From these Recursive Relations, we can recursively find Primes.

Moral

Our Promises Hold The Key To Our Lives.

References

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Dedication

*All of the aforementioned Research Works, inclusive of this One are **Dedicated to Lord Shiva**.*