Prime Number Explanation

Its nature, appearance, types, movement, prediction.
We take the number 1, we represent a series of such numbers. Definitely, any natural number \( n > 0 \) consists of 1, hence is in this series.

Let's represent a series of the next number not being the previous one, but larger \( 1 + 1 = 2 \) below.

Let's represent a series of the next number not being the previous, but larger \( 2 + 1 = 3 \) below. Obviously, a new internal series of \( 2 \times 3 = 6 \) was formed, thus forming a kind of static numerical base. Hence any number of the form \( 1n, 2n, 3n, \ldots, (6n) \) will be in this number strip.

Obviously, the numbers for the subsequent series not being the previous 1, 2, 3, 6, and derived from them 2n, 3n, \((6n)\), except \(1n\), can only be of the form \( 6n \pm 1 \). Even for \( n = 0, 6 \times 0 + 1 = 1 \), but 1 has already been taken.

It is also seen that the new numbers are dynamic, the number 6-1 moves left by 1 with each step, and the number 6+1 is similar to the right. Consequently, such a displacement periodically leads to overlapping of the numbers \( 6n \pm 1 \), thereby leading to the impossibility of the appearance of numbers for new series different from previous ones and not produced from them.

As a consequence, we can select several types of primes: initial (prime) number is 1, the base primes are 2, 3 and the dynamic primes are \( p > 5 \).
Observing the motion, we can notice that the dynamic prime numbers will be periodically multiples of the basic prime numbers and the numbers $6n \pm 1$.

So $5 (6 \times 1 - 1)$ will close through 4 steps $6n+1$, and $6+5+5+5 = 25$, after 2 more steps $6n-1$, $25-5+5 = 35$ and so on.

But $25 - 1 = 24/6 = 4$th six $(6 \times 1+1)$, and $35 + 1 = 36/6 = 6$th six $(6 \times 1)$, in this case behind there are unoccupied numbers $6n \pm 1$, which will never be closed by 5.

Since the numbers $6n \pm 1$ can intersect with others of the same type, it is necessary to take the nearest larger $6n \pm 1$ to an already existing one, so as not to break the order. It is 7 $(6 \times 1+1)$, which in turn through 4 steps closes $6n-1$, $7+6+6+1 = 20$ occupied by the previous 5, after another 2 steps will close $6n+1$, $35+2+7 = 49$, thereby again having unoccupied $6n \pm 1$ numbers behind and so on.

Hence the product of the dynamic prime with the previous ones and their exponents are occupied $6n \pm 1$ numbers. Then as the nearest larger $6n \pm 1$ to the greatest prime is a new prime number.

In principle, 5 is enough to learn the following primes. It is clear that all the numbers $5n$ are in 5's row, then in it and all 5p. Since 5 on 4 and 2 steps crosses $6n \pm 1$ numbers, then in these intersections there will be numbers made from the following prime ones with 5 or 5 powers.

$5 + 4 \times 5 = 25 + 2 \times 5 = 35 + 4 \times 5 = 55 + 2 \times 5 = 65 + \cdots$

It is easy to see all possible distances between dynamic prime numbers, they are always a multiple of 2 or 6.
Consider the moment of appearance of 5 and 7, it is clear that the place \(6 \times 0 + 1\) below the static numeric strip is free, since it is already occupied by 1. It is also seen that 5 and 7 start from one line, then probably further to the right there is exactly the same arrangement. Find it. \(5 \times 7 = 2\times 10\).

We see that 2\(\times\)10 is the initial line for 5 + 2\(\times\)10 and 7 + 2\(\times\)10, and 2\(\times\)10 + 1 is a new prime number because it is like 6 \(\times\) 0 + 1 place, since 2\(\times\)10 > 0. Assume that it is occupied, then we take the product of all primes by 6, \(P_1 \times P_2 \times P_3 \times \cdots \times P_n \times 6 = m\), then \(m + 1\) will again be free, since all prime numbers will start from \(m\), and \(m > 0\), and if it is occupied, then not all prime numbers were taken and this is the most not taken into account number. Finding a new product \(P_1 \times P_2 \times \cdots \times P_n \times P_{n+1} \times 6 = m_2\), then \(m_2\) will move to the right, thereby creating the previous situation. Consequently, every following product of primes on 6 will create a new prime of the form \(6n + 1\). So each new prime number will expand and deepen a kind of numerical funnel.

We can also see that to the left of the 2\(\times\)10 numbers move mirror in opposite directions and in the middle 2\(\times\)10/2 = 105 again converge and diverge. It is noteworthy that to the left of 0, negative numbers will also mirror to the other side.

It is interesting whether there exists such \(n\), for which numbers of the form \(6n - 1\) cease to appear or they exist by the same rules, only move from infinity.