The result of the product of two or more prime numbers is always equal to the result of the sum of only two or three prime numbers.

by Silvana di Savino

abstract:
The even number 2n, which is the product of two or more prime numbers with 2, is always equal to the sum of only two prime numbers equidistant from half their sum; the odd number 2n+1, which is the product of two or more prime numbers with 2 + the odd number 1, is always equal to the sum of two prime numbers equidistant from half their sum, which is an even number + a prime number, 1+2n, which is the difference between the two equidistant primes.

Natural numbers are prime numbers or composite numbers and are infinite; we will never know the largest prime number because it has been demonstrated that prime numbers are infinite and Euclid demonstrated this with their generation: new prime numbers are obtained with the product of all known prime numbers + 1; we will never know the largest composite number because, Gauss, with the Fundamental Theorem of Arithmetic also called the Unique Factorization Theorem, hereinafter F.A.T., demonstrated that a composite number is the product of two or a greater quantity of individually prime numbers ^n ≥ 1; Peano with the 2nd of his 5 axioms demonstrated that there exists the next number of every number which is the previous one + 1. Euclid proved that prime numbers are infinite by adding 1 to an even number that is the result of 2*n which from T.F.A. is the product of the known prime numbers; with 2n all even numbers are generated which are the result of the product of even innumerable prime numbers but, that even number (the result of the product of even very many prime numbers), in Goldbach's conjecture will always be the sum of only two prime numbers and, any odd number, will always be the sum of only three prime numbers. sum of three primes. It is not possible to verify: all natural numbers because for every number there exists the next +1; for every even number there exists the next +2; for every odd number there exists the next +2; for every prime number there exists the next + ≥2.

If we can affirm that infinite natural prime numbers and composite numbers exist and are generated, which we will never know, it is because the prime factors and how they are generated are known. We can never claim to have generated and verified all the even numbers, which, as stated by Euler in the strong version of Goldbach's conjecture, are the sum of two prime numbers. For every nth even number that has been verified, there will always exist the next even number +2 that has not been verified and which is the sum of two prime numbers. However, the infinite prime numbers are the numbers preceding or succeeding the even numbers 2n and, in 6n form, are the numbers 6n±1 and 6n±2±1.

All even numbers ≥ 4, which with the Fundamental Theorem of Arithmetic are the result of the product 2n, (refer to Euclid's 2n) can be reported in the form 6n and 6n±2 and the infinite odd numbers, which are the result of 2n+1 (refer to Euclid's 2n+1), are the numbers preceding or succeeding the even numbers 2n and, in the form 6n, are numbers 6n±1 and 6n±2±1. The prime numbers ≥ 3 are: 3 which is a 6n-2-1 number and other infinite n_primes which are all numbers preceding or succeeding a number 6n which is half the sum of a number 6n-1 with a number 6n+1 distant from each other ≥ 1.

We know the prime factors of a number that is the result of the product of prime numbers, and we know the two prime numbers that generate all the even numbers 6n and 6n±2. In each even number 2n, reported in the form 6n and 6n±2, in addition to the prime numbers 2 and 3, the other prime numbers > 4 and less than the even number are all numbers in the form 6n±1 and are the preceding or succeeding numbers of a number 6n, and for which we can state:

a._ that all even numbers 6n are the double of n_prime 3 or the combinatorial sum of a prime number 6n-1 with a prime number 6n+1 distant from each other ≥1+6n.

b._that all even numbers 6n-2 are the double of a prime number 6n-1 or the combinatorial sum of an n_prime 6n-1 plus an n_prime 6n-1 distant from each other ≥6n.

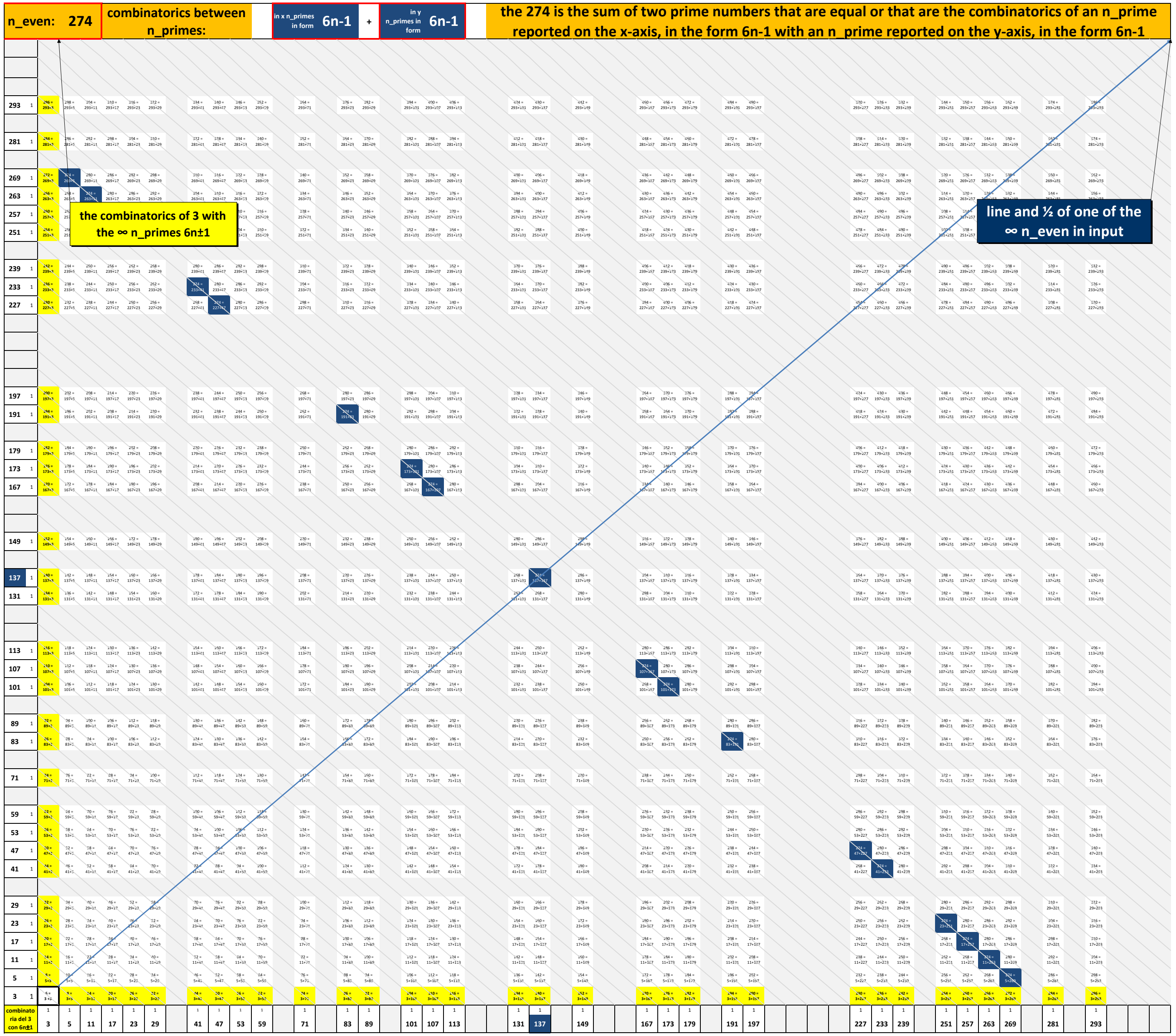
c._ that all even numbers 6n+2 are double of a prime number 6n+1 or the combinatorial sum of an n_prime 6n+1 plus an n_prime 6n+1 distant from each other ≥6n.

All infinite even numbers ≥ 4 in the form 6n are: the double of 2, of 3, of a 6n-1 n-prime or of a 6n+1 n-prime, or are the combinatorial sum of two 6n-1 n-primes, the combinatorial sum of two 6n+1 n-primes, or the combinatorial sum of a 6n-1 n-prime with a 6n+1 n-prime. All infinite even numbers 6n and 6±2 are the result of the double of a prime number, or the sum of two n-primes equidistant from half their sum, one of which is the smallest n-prime + the distance between the two primes.

attachments:
n_even 6n-2 = combinatorial n_prime 6n-1 with n_prime 6n-1
n_even 6n+2 = combinatorial n_prime 6n+1 with n_prime 6n+1
n_even 6n = combinatorial n_prime 6n-1 with n_prime 6n+1

references:
Euclide: 300 a.C.
Goldbach 1690_1764
Eulero 1707_1783
Gauss 1777_1855
Goldbach's conjecture 1742

We will never be able to compute all the prime numbers that exist, but we don't know how many there are and what their magnitudes are.
But of any even number, we can combine all the n-primes equidistant from ½ of n-even.



The infinite natural numbers

Natural numbers in the form 6n

The infinitely many even numbers ≥ 4 are 6n or 6n±2 numbers; the ∞ odd numbers are the numbers preceding or following the even numbers and are 6n±1 or 6n±2±1 numbers; the ∞ prime numbers ≥ 3 are 3 which is a 6n-2-1 number and ∞ n_ primes in the form 6n-1 or 6n+1.

Prime numbers

they are divisible only by 1 and by itself; Euclid and later other mathematicians have demonstrated that prime numbers are infinite and, even if they cannot be worked out and known because they are large and inaccessible, they exist as exist all natural numbers ≥ 2 which are prime numbers or are composite numbers which are the product of n_primes.

An even number is the result of the product of 2 with one of the infinite natural numbers but it is also the sum of the same prime number or the sum of two different prime numbers.

Fundamental Theorem of Arithmetic

The T.F.A. states that every natural number ≥ 2 is prime or can be expressed as a product of prime numbers in a unique way, up to the order of the factors.

Goldbach's conjecture

._ the weak version, formulated by Goldbach (1690–1764), states: the infinite odd numbers ≥7 are the sum of three prime numbers

._the strong version, formulated by Euler (1690–1764), states: the infinite even numbers ≥ 4 are the sum of two prime numbers

The infinite even numbers 6n-1 + 6n-1

The even n-numbers are all the sum of the combinatorics of the same prime number or of two prime numbers, large, inaccessible and unreachable and also unknown: a) n-primes in the form 6n-1 with primes in the form 6n+1 and of 3 with n-primes 6n±1; b) of two equal or different n-primes 6n-1 or of two equal or different n-primes 6+1;

with n_primes 6n-1+n_primes 6n-1 'in combinatorics on the sides of Viviani's triangle', the n_even, sum of n_primes 6n-1 + n_primes 6n-1 is on the hypotenuse

The infinite even numbers ≥ 4 are the product of 2n or numbers 6n or 6n±2, which are the sum of two n_prime in combinatorics of:
a) 3 and n_primes 6n+1 with n_primes 6n-1; b) two equal or different primes of 6n+1 or 6n-1.

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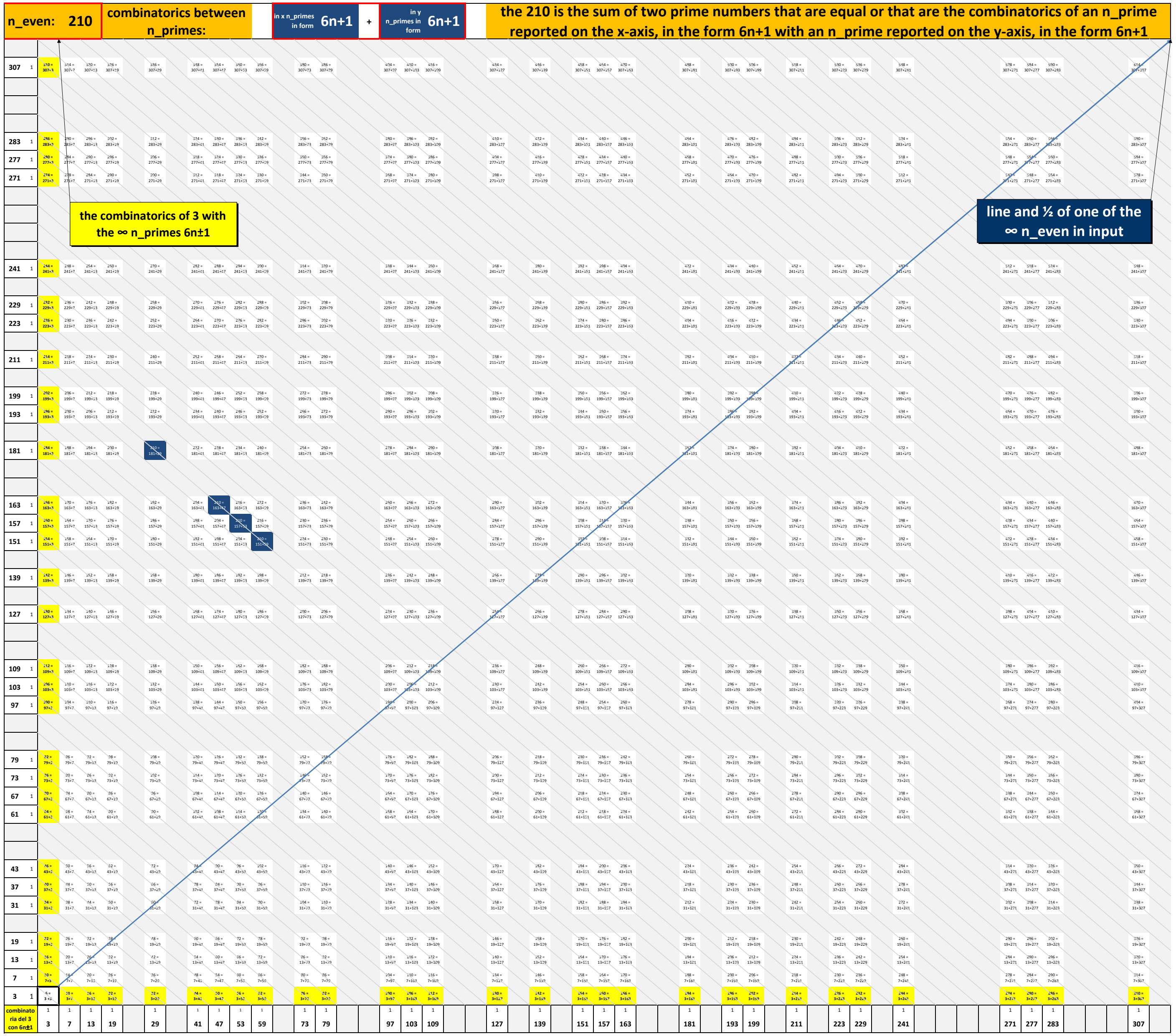

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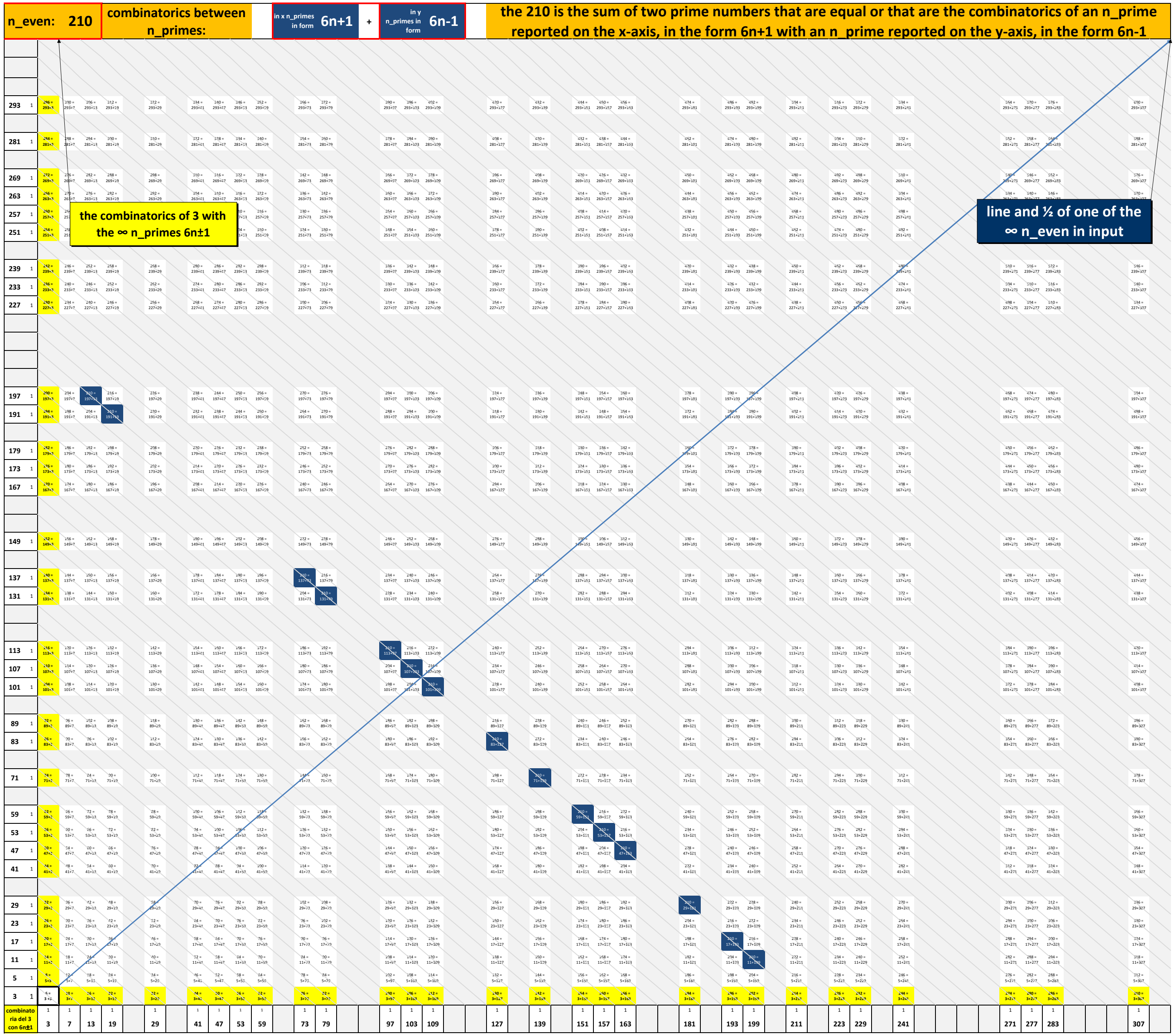

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