A function that represents all primes exactly and without exception

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Abstract

We can find all prime numbers in steps of Fibonacci or Lucas numbers.

The function that generates those prime numbers is:

dn / dx = x ^ (4 / p) -3x ^ (2 / p) +1

Where n is the derivative of order n (which must be a Lucas number) and p is the distance in units of the separation between primes that we want to find.

The relationship between this function and the Lucas numbers is that in the undifferentiated function x ^ (4 / p) -3x ^ (2 / p) +1 it´s zeros are the Lucas numbers.

For example x ^ (4/7) -3x ^ (2/7) + 1 = 0

One of its zeros is 29 which is the 7th number of Lucas

For the particular case of p=4 the function returns all prime numbers without exception for n= Fibonacci number or Lucas number

For example for n=29 and p=4

We use the numerator of the derivative. We use allways use the same number in the expression of the derivative.

d^29/dx^29(x^(4/4) - 3 x^(2/4) + 1) =
-26062093105685253599480874300846796875/(536870912 x^(57/2))

The factorization of this number is:

-3^14×5^7×7^5×11^3×13^2×17^2×19×23×29×31×37×41×43×47×53

Also the quotient between the last prime found and n is approximately 2

Last prime found / n ≈ 2