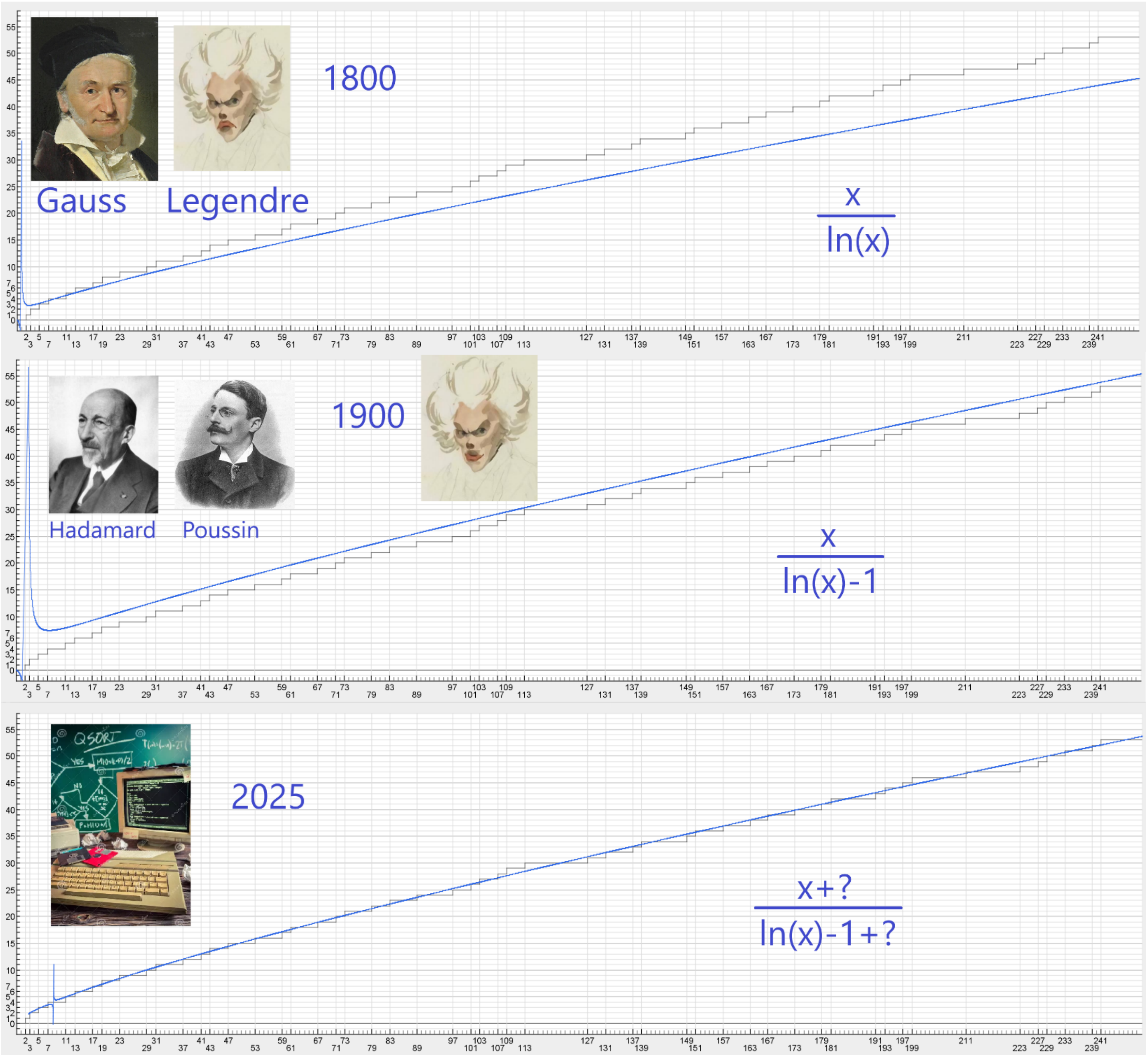
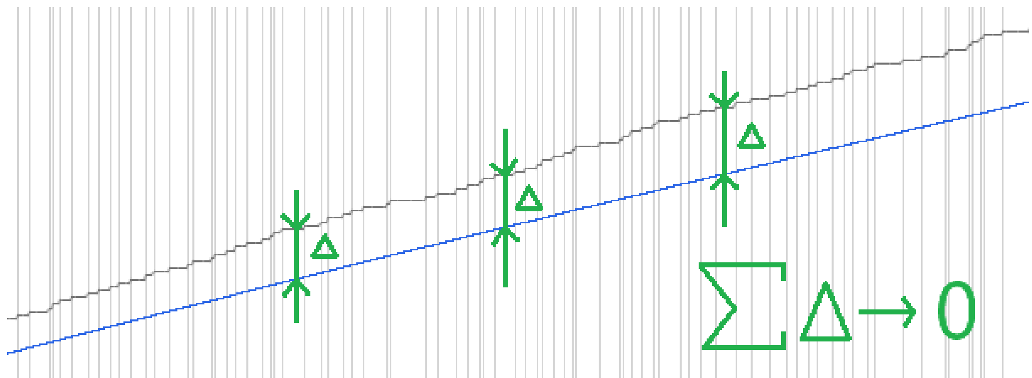
Prime number theorem

Subject: improving Gauss prime-counting function with a brute-force close research program.

Search for the arithmetic function « Logarithm asymptotic » La(x) as an approximation of $\pi(x)$ or anti-derivative form of Li(x).

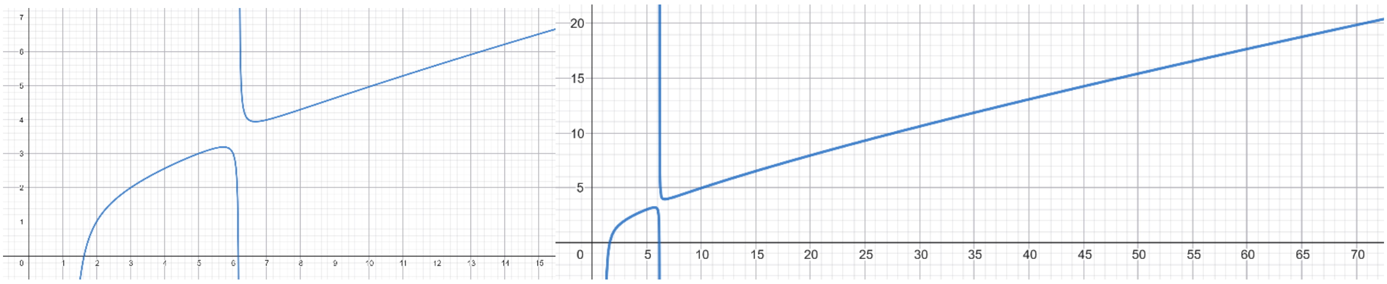


Methodology: Sum the deltas between prime stairs $\pi(x)$ and La(x) and get the closest to zero.



Best result found after years of random search:

$$La(x) \simeq \frac{x - 3.54\sqrt{\frac{x}{\ln(x)}} + 10.66\left(\frac{\ln(x)}{x}\right)^{2.666} + 0.46\,(\ln(x))^{0.75} - 1}{\ln(x) + \frac{1.3}{x} - \frac{0.86}{\ln(x) - \frac{(\ln(x))^{0.666}}{1.62} + 2\left(\frac{\ln(x)}{x}\right)^{0.666} - 1} - 1} \approx \pi(x)$$

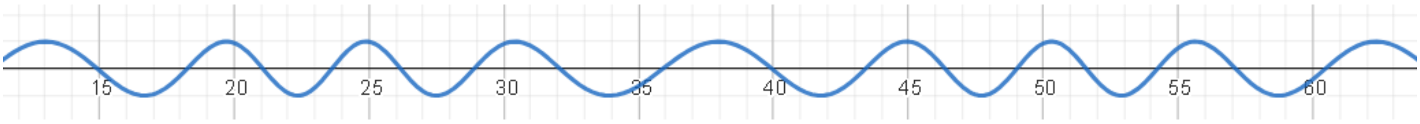


[www.geogebra.org/graphing:](www.geogebra.org/graphing)

(x-3.54sqrt(x/ln(x))+10.66(ln(x)/x)^2.666+0.46ln(x)^0.75-1)/(ln(x)+1.3/x-0.86/(ln(x)-(ln(x)^0.666)/1.62+2(ln(x)/x)^0.666-1)-1)

The constants are approximative but the structure is clear-cut. The structure obviously suggests the primes repartition does not follow a random probability but a precise logarithm.

Conjuncture: we could use la(x) to identify primes with the zeros of a trigonometric function, spring witch tends and relax at la(x) pace could be a solution: cos(x + cos(lax))



Another one could be the skiing function: cos(x) + cos(lax)

Brute-force java program is open source here: [github]

$\pi(x)$ stair's dataset is generated in [Eratosthene] -> pixRefMap() and stored in [PrimesUtils].

Li(x) values are used for x > 10^30 until x = 10^300.

Run [IdentifyLaxTest] to search for La(x) function.

Run [PrimeTest9] to try to identify primes with a skiing function.

Run [PrimeTest11] to try to identify primes with a spring function.

[Author]