The Euler Product Formula derived from the Sum of the Power of Primes

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Abstract: Relate the sum of powers of multiple primes to the sum of powers of natural numbers.

Key words: Euler product formula, Riemann conjecture.

If I hadn't calculated the sum of the products of different prime powers, I'm afraid I would never have anything to do with Euler, because knowing how magic works, it would be very simple.

$\forall m, n, k, d, n_k \in N$, $\forall p, p_k \in$ prime numbers , $\forall p^n = \frac{p^n-1}{1-p^{-n}}$, $\forall \prod_{k=0}^{\infty} p_k{}^n = \prod_{k=0}^{\infty} \frac{p_k{}^n-1}{1-p_k{}^{-n}}$,

Divisor of $\forall p^n$,Such as, $p^0, p^1, p^2, p^3, p^4, \ldots\ldots p^n$,Sum of divisors of $\forall p^n$, $S_n = \sum_{m=0}^{n} p^m = \frac{p^{n+1}-p^0}{p^1-1}$,

The reciprocal of the divisor of $\forall p^n$, Such as , $p^0, p^{-1}, p^{-2}, p^{-3}, p^{-4}, \ldots\ldots p^{-n}$,

The reciprocal sum of the divisor of $\forall p^n$, $S_{-n} = \sum_{m=0}^{n} p^{-m} = \frac{p^{-n-1}-p^0}{p^{-1}-1} = \frac{p^{n+1}-p^0}{p^n(p^1-1)}$,

$\Rightarrow \forall p^n = \frac{S_n}{S_{-n}} = \frac{\sum_{m=0}^{n} p^m}{\sum_{m=0}^{n} p^{-m}} = \frac{p^{n+1}-p^0}{p^1-1} / \frac{p^{-n-1}-p^0}{p^{-1}-1}$, $\prod_{k=0}^{\infty} p_k{}^n = \prod_{k=0}^{\infty} \frac{\sum_{m=0}^{n} p_k{}^m}{\sum_{m=0}^{n} p_k{}^{-m}} = \prod_{k=0}^{\infty}(\frac{p_k{}^{n+1}-p_k{}^0}{p_k{}^1-1} / \frac{p_k{}^{-n-1}-p_k{}^0}{p_k{}^{-1}-1})$,

$\left(\sum_{m=0}^{2} 2^m\right) = 1 + 2 + 4$, $\left(\sum_{m=0}^{2} 2^m\right) * \left(\sum_{m=0}^{2} 3^m\right) = 1 + 2 + 3 + 4 + 6 + 9 + 12 + 18 + 36$,

$\left(\sum_{m=0}^{2} 2^m\right) * \left(\sum_{m=0}^{2} 3^m\right) * \left(\sum_{m=0}^{2} 5^m\right) = 1 + 2 + 3 + 4 + 5 + 6 + 9 + 10 + 12 + 15 + 18 + 20 + 25 + 30 +$

$36 + 45 + 50 + 60 + 75 + 80 + 100 + 150 + 180 + 225 + 300 + 450 + 900$,

Therefore, the product of the power sum of all primes, according to the law of multiplicative distribution, their expansions correspond to all natural numbers one by one.

$n \to \infty$, $\Rightarrow \sum_{d=1}^{\infty} d^{\pm 1} = \prod_{k=0}^{\infty} \frac{p_k{}^{\pm(n+1)}-p_k{}^0}{p_k{}^{\pm 1}-1}$, $\prod_{k=0}^{\infty} p_k{}^n = \prod_{k=0}^{\infty}(\frac{p_k{}^{n+1}-p_k{}^0}{p_k{}^1-1} / \frac{p_k{}^{-n-1}-p_k{}^0}{p_k{}^{-1}-1}) = \frac{\sum_{d=1}^{\infty} d^{+1}}{\sum_{d=1}^{\infty} d^{-1}}$,

$n_k \to \infty$, $\Rightarrow \sum_{d=1}^{\infty} d^{\pm s} = \prod_{k=0}^{\infty} \frac{p_k{}^{\pm s(n_k+1)}-p_k{}^0}{p_k{}^{\pm s}-1}$, $\prod_{k=0}^{\infty} p_k{}^{s*n_k} = \frac{\sum_{d=1}^{\infty} d^{+s}}{\sum_{d=1}^{\infty} d^{-s}}$.

$\Rightarrow \sum_{d=1}^{\infty} d^{-s} = \prod_{k=0}^{\infty} \frac{p_k{}^{-s(n_k+1)}-p_k{}^0}{p_k{}^{-s}-1} = (\sum_{d=1}^{\infty} d^{+s}) \prod_{k=0}^{\infty} \frac{1-p_k{}^{-s*n_k}}{p_k{}^{s*n_k}-1} = (\sum_{d=1}^{\infty} d^{+s}) \prod_{k=0}^{\infty} p_k{}^{-s*n_k}$,

So, the Euler product formula is not accurate, that is, $\sum_{d=1}^{\infty} d^{-s} \neq \prod_{k=0}^{\infty} \frac{1}{1-p_k{}^{-s}}$.

If $\left(1-\frac{1}{2}\right)\sum_{d=1}^{\infty} d^{-1} = \sum_{d=1}^{\infty}(2d-1)^{-1}$, $\Rightarrow (\sum_{d=1}^{\infty}(2d-1)^{-1}) - \frac{1}{2}\sum_{d=1}^{\infty} d^{-1} = 0$, but, $\sum_{d=1}^{\infty}(-1)^{d+1} d^{-1} = \ln 2$.

Therefore, all papers quoting the Euler product formula are problematic, and the Riemann conjecture related to the Euler product formula is wrong.

Reference: none.