Prime Factorization Of 169

1, 4, 8, 9, 16, 25, 27, 32, 36, 49, 64, 72, 81, 100, 108, 121, 125, 128, 144, 169, 196, 200, 216, 225, 243, 256, 288, 289, 324, 343, 361, 392, 400, 432, 441, 484, 500, 512, 529, 576, 625, 648, 675, 676, 729, 784, 800, 841, 864, 900, 961, 968, 972, 1000, ... (sequence A001694 in the OEIS). f585471ca9 Note that there are rational primes which are not Gaussian primes. A simple example is the rational prime 5, which is factored as 5=(2+i)(2−i) in the table, and therefore not a Gaussian prime. f585471ca9 169 is an odd number, a composite number, and a deficient number. f585471ca9 == Definition == f585471ca9 == Conventions == f585471ca9 The first such distribution found is π(N) ~ N/log(N), where π(N) is the prime-counting function (the number of primes less than or equal to N) and log(N) is the natural logarithm of N. This means that for large enough N, the probability that a random integer not greater than N is prime is very close to 1 / log(N). In other words, the average gap between consecutive prime numbers among the first N integers is roughly log(N). Consequently, a random integer with at most 2n digits (for large enough n) is about half as likely to be prime as a random integer with at most n digits. For example, among the positive integers of at most 1000 digits, about one in 2300 is prime (log(101000) ≈ 2302.6), whereas among positive integers of at... f585471ca9

Powerful number Paul Erdős and George Szekeres studied such numbers and Solomon W. Equivalently, a powerful number is the product of a square and a cube, that is, a number m of the form m = a2b3, where a and b are positive integers. least two, and every prime in the prime factorization of b appears in the prime factorization of m with an exponent of at least three; therefore, m is powerful A powerful number is a positive integer m such that for every prime number p dividing m, p2 also divides m. (Not to be confused with the term squareful, which refers to numbers that are not square-free. Powerful numbers are also known as squarefull, square-full, or 2-full. Golomb named such numbers powerful.) f585471ca9

169 is a square number: 13 × 13 = 169, and if each number is reversed the equation is still true: 31 × 31 = 961. 144 shares this

property: 12 × 12 = 144, 21 × 21 = 441. f585471ca9 Every positive integer f585471ca9

Table of prime factors When n is a prime number, the prime factorization is just n itself, written The tables contain the prime factorization of the natural numbers from 1 to 1000. The tables contain the prime factorization of the natural numbers from 1 to 1000 f585471ca9

Highly cototient number Computations become harder, since integer factorization becomes harder as the numbers get larger. The cototient of x {\displaystyle x} is defined as x − ϕ In number theory, a branch of mathematics, a highly cototient number is a positive integer f585471ca9

complex plane using the symmetry f585471ca9 The base-b repunits are defined as (this b can be either positive or negative) f585471ca9

Square-free integer Each is a factor of the next one. That is, its prime factorization has exactly one factor for each prime that appears in it. factor. All are easily deduced from the prime factorization or the square-free factorization: if n = ∏ i = 1 h p i e In mathematics, a square-free integer (or squarefree integer) is an integer that is divisible by no square number other than 1. For example, 10 = 2 · 5 is square-free, but 18 = 2 · 3 · 3 is not, because 18 is divisible by 9 = 32. The smallest positive square-free numbers are f585471ca9

== Square-free factorization == f585471ca9 Practically speaking, ECM is considered a special-purpose factoring algorithm, as it is most suitable for finding small factors. Currently, it is still the best algorithm for divisors not exceeding 50 to 60 digits, as its running time is dominated by the size of the smallest factor p rather than by the size of the number n to be factored. Frequently, ECM is used to remove small factors from a very large integer with many factors; if the remaining integer is still composite, then it has only large factors and is factored using general-purpose techniques. The largest factor found using ECM so far has 83 decimal digits and was discovered on 7 September 2013 by R. Propper. Increasing... f585471ca9 Many properties of a natural number f585471ca9 The number 1 is called a unit. It has no prime factors and is neither prime nor composite. f585471ca9 The factorizations are often not unique in the sense that

the unit could be absorbed into any other factor with exponent equal to one. The entry 4+2i = −i(1+i)2(2+i), for example, could also be written as 4+2i= (1+i)2(1−2i). The entries in the table resolve this ambiguity by the following convention: the factors are primes in... f585471ca9 x f585471ca9 When n is a prime number, the prime factorization is just n itself, written in bold below. f585471ca9 == In mathematics == f585471ca9 k f585471ca9

Repunit Only repunits (in any base) having a prime number of digits can In recreational mathematics, a repunit is a number like 11, 111, or 1111 that contains only the digit 1 — a more specific type of repdigit. Beiler in his book Recreations in the Theory of Numbers. repunit factorization does not depend on the base-b in which the repunit is expressed. The term stands for "repeated unit" and was coined in 1966 by Albert H f585471ca9

Table of Gaussian integer factorizations The factorizations take the form of an optional unit multiplied A Gaussian integer is either the zero, one of the four units (±1, ±i), a Gaussian prime or composite. The article is a table of Gaussian Integers x + iy followed either by an explicit factorization or followed by the label (p) if the integer is a Gaussian prime. The factorizations take the form of an optional unit multiplied by integer powers of Gaussian primes. either by an explicit factorization or followed by the label (p) if the integer is a Gaussian prime f585471ca9

A repunit prime is a repunit that is also a prime number. Primes that are repunits in base-2 are Mersenne primes. As of May 2025, the largest known prime number 2136,279,841 − 1, the largest probable prime R8177207 and the largest elliptic curve primality-proven prime R109297 are all repunits in various bases. f585471ca9 The second column of the table contains only integers in the first quadrant, which means the real part x is positive and the imaginary part y is non-negative. The table might have been further reduced to the integers in the first octant of the f585471ca9 169 is one of the few squares to also be a centered hexagonal number. Like all odd squares, it is a centered octagonal number. 169 is an odd-indexed Pell number, thus it is also a Markov number, appearing in the solutions (2, 169, 985), (2, 29, 169), (29, 169, 14701), etc. 169 is the sum of seven consecutive primes: 13 + 17 + 19 + 23 + 29 + 31 + 37. 169 is a difference in consecutive cubes, equaling f585471ca9 y

+ ix =i (x − iy). f585471ca9

Prime number theorem Re(s) > 1. It formalizes the intuitive idea that primes become less common as they become larger by precisely quantifying the rate at which this occurs. The theorem was proved independently by Jacques Hadamard and Charles Jean de la Vallée Poussin in 1896 using ideas introduced by Bernhard Riemann (in particular, the Riemann zeta function). This product formula follows from the existence of unique prime factorization of integers, and shows that ζ(s) is never zero in this region In mathematics, the prime number theorem (PNT) describes the asymptotic distribution of prime numbers among the positive integers f585471ca9

Quadratic residue In the case of a composite modulus with unknown prime factorization, the problem of identifying quadratic In number theory, an integer q is a quadratic residue modulo n if it is congruent to a perfect square modulo n; that is, if there exists an integer x such that. composite moduli whose prime factorization is known f585471ca9

Lenstra elliptic-curve factorization The second-fastest is the multiple polynomial quadratic sieve, and the fastest is the general number field sieve. For general-purpose factoring, ECM is the third-fastest known factoring method. The Lenstra elliptic-curve factorization is named after Hendrik Lenstra. It is an algebraic-group factorisation algorithm. elliptic-curve factorization or the elliptic-curve factorization method (ECM) is a fast, sub-exponential running time, algorithm for integer factorization, which The Lenstra elliptic-curve factorization or the elliptic-curve factorization method (ECM) is a fast, sub-exponential running time, algorithm for integer factorization, which employs elliptic curves f585471ca9

== Properties == f585471ca9 The following is a list of all powerful numbers between 1 and 1000: f585471ca9

169 (number) solutions (2, 169, 985), (2, 29, 169), (29, 169, 14701), etc. 169 is the sum of seven consecutive primes: 13 + 17 + 19 + 23 + 29 + 31 + 37. 169 is a difference 169 (one hundred [and] sixty-nine) is the natural number following 168 and preceding 170 f585471ca9

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