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23 January 1989

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Subject: various Prime nbr. seq.

Dear Sir,

Mersenne primes seq. 248 2^{n-1} n= ..., 11213, 19937, 21701, 23209, 44497, 86243, 110503, 132049, 216091. Mathematics Magazine V61n3p206 N3p151 N4p269. ✓

Repunits $(10^n-1)/9$ n = 2, 19, 23, 317, 1031 and no others for $n \leq 9973$. ✓ ✓

Factorial Primes

$n!+1$ n= 1, 2, 3, 11, 27, 37, 41, 73, 77, 116, 154, 320, 340, 399, 427, 872, 1477, and no others for $n \leq 2043$. ✓ ✓

new terms

$n!-1$ n= 3, 4, 6, 7, 12, 14, 30, 32, 33, 38, 94, 166, 324, 379, 469, 546, 974 and no others for $n < 1156$. A2982

p# is defined as the product of all primes that are $\leq p$ "primorial"

p#-1 p= 3, 5, 11, 13, 41, 89, 317, 337, 991, 1873, 2053, 2377, 4093, 4297, 4583, 6569, and no others for $p < 6997$. ✓

Euclid Primes are p#+1 p= 2, 3, 5, 7, 11, 31, 379, 1019, 1021, 2657, 3229, 4547, 4787, and no others for $p \leq 11212$. ✓

$\pi(10^n)$ from $n=\phi$. The number of primes below the n^{th} Power of 10. 0, 4, 25, 168, 1229, 9592, 78498, 664579, 5761455, 50847534, 455052512, 4188054813, 37607912018, 34606553683 9, 320494 1750802, 29844570422669, ... and its inverse :—

A6880 lots more terms!

10^n from $n=0$ of $\pi()$ = 2, 29, 541, 7919, 104729, 1299709, 15485863, 179424691, ...

A6988 new

Enter %N the 10^n-th prime %R rgw

R.D. Carmichael nbrs. (absolute pseudo-primes) 561, 1105, 1729, 2465, 2821, 6601, 8911, 10585, 15841, ...

D.H. Lehmer (even absolute pseudo-primes) 161038, 215326, 2568226, 14374226, ..

2^n+1 is prime for $n=$ 1, 2, 4, 8, 16, ?

Subfactorials which are prime 3, 4, 5, 6, 7, 8, 10, 15, 19, ?

n^n+1 is prime for $n=$ 1, 2, 4 and no others where $n^n+1 \leq 10^{300,000}$ or in other words $n \leq 155774$

A2253 extend

your seq. 506 ~~[illegible]~~ $3*2^n+1$ is prime for $n=$ 1, 2, 5, 6, 8, 12, 18, 30, 36, 41, 66, 189, 201, 209, 276, 353, 408, 438, 534, 2208, 2816, 3168, 3189, 3912, ... → Knuth Vol 2 p 614.

KN1 2 614.

~~n^n+1~~ is prime for $n=$ 2, 17, ?

"Fortunate numbers" 2, 3, 5, 7, 13, 23, 17, 19, 23, 37, 61, ...
ref: A number for your thoughts by Stephen P. Richards page 200.

Sequentially yours,

Robert G. Wilson v.