

Re: Q: About number of primes with n digits?

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- *From:* "Danny" <fasttrack2a@xxxxxxxxxxxxxx>
 - *Date:* 2 Jan 2007 21:15:51 -0800
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jankrihau@xxxxxxxxxxxxxx wrote:

Danny wrote:

The first 4 primes are single digits in length.
The next 21 primes are 2 digits in length.
The next 143 are 3 digits in length.
etc..

4, 21, 143, 1061, 8363, 68906, 586081, 5096876, 45086079,
404204977, 3663002302, 33489857205, 308457624821, 2858876213963,
26639628671867, 249393770611256, 2344318816620308,
22116397130086627, 209317712988603747, 1986761935284574233,
18906449883457813088, 180340017203297174362

Sequence is in OEIS as A006879.

Will the ratio between terms converge?

If the sequence is divergent then at any point can the next ratio be < the previous ratio?

Dan

By the PNT, the nth term is asymptotically

$$0.9 * 10^n / (n \log 10)$$

so the ratio converges to 10.

J K Haugland

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My reasoning is probably way off but if the above formula you give is only asymptotically

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correct how can the ratio be an absolute convergence
too 10?

I have been looking up the PNT and see nothing
about any value pertaining to the different (n) lengths
of the primes. Only the different methods used for estimating
 $\pi(x)$ not digit length (n) counting.
Also nothing about ratio convergence of this particular
count.

Then again, I could have over looked something.

Thanks,

Dan

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