Re: A possible argument for no more Fermat primes.

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- *From*: amy666 <tommy1729@xxxxxxxxxxx>
- *Date*: Sun, 10 Aug 2008 18:03:20 EDT

> You seem to be looking for primes of the form 2^n +

1

No

> or 2^(4n) + 1.

yes

> But your results are a consequence of the fact that

if >n=rs where s is

> odd

Nothing is odd except after (+1)

> then 2^n+1 can be divided by 2^r+1.

> So for example, 2^96 + 1 is divisible by 2^32 + 1

Yes−−−

> The search for bigger Fermat primes (or a proof that
> no .more exist)
> can be restricted to those of the form
> 2^(2^n) + 1.

Henry,

I am just showing the pattern of all 2^n+1 where (n)
will always be divisible by 4.

Its in this pattern that if ever another Fermat prime

is found it will throw off this pattern.

2^36+1 = has as one of its factors (17)
2^40+1 = " " " " " " (257)
2^44+1 = " (17)
2^48+1 = " (65537)
2^52+1 = " (17)
2^56+1 = " (257)
2^60+1 = " (17)
2^64+1 = Has 2 prime factors and none are Fermat
primes.

I will skip too 2^100 for the sake of simplicity
but this pattern is consistent.

(")= has as one of its prime factors

2^100+1 = (") (17)
2^104+1 = (") (257)
2^108+1 = (") (17)
2^112+1 = (") (65537)
2^116+1 = (") (17)
2^120+1 = (") (257)
2^124+1 = (") (17)
2^128+1 = (") a composite with no Fermat primes as
factors.

My point is, say at some very large (n) where
2^(2^n) +1 = a prime, making it the 6th Fermat
prime.

The cyclic pattern =

2^(2^(n−28)+1 = (") 17
2^(2^(n−24)+1 = (") 257
2^(2^(n−20)+1 = (") 17
2^(2^(n−16)+1 = (") 65537
2^(2^(n−12)+1 = (") 17
2^(2^(n−8)+1 = (") 257
2^(2^(n−4)+1 = (") 17
2^(2^n)+1 = the 6th Fermat prime.

Will any later cycles include the 6th Fermat prime

as one of the (8) composite factors shown above?
Right now the cycle picks up the last 3 Fermat
primes 17,257,65537, as one of the factors in 7
of these composites.
Will there now be 4 Fermat primes after the sixth
Fermat prime is found and it would only fit in the
last position of the cycle?

Dan

look at the none−fermat prime factors of 2^n + 1.
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