Re: More primality testing (was: Elementary group theory: Proof of Fermat−Maas ...)

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- *From*: Gerry Myerson <gerry@xxxxxxxxxxxxxxxxxxxxxxxxx>
- *Date*: Wed, 31 Jan 2007 22:01:08 GMT

In article <877iv3p69g.fsf@xxxxxxxxxxxxxxxxxxxx>,
Phil Carmody <thefatphil_demunged@xxxxxxxxxxx> wrote:

> "Dik T. Winter" <Dik.Winter@xxxxxx> writes:
>
> > In article <877iv4r6yg.fsf@xxxxxxxxxxxxxxxxxxxx> Phil Carmody
> > <thefatphil_demunged@xxxxxxxxxxx> writes:
> > > "Dik T. Winter" <Dik.Winter@xxxxxx> writes:
> > > > As far as I know there are no prizes for proving a number prime.
> > >
> > > FYI, there are. the first proven primes over 10^7 million,
> > > 10^8 million, and 10^9 million digits will each receive
> > > a prize from a group of bodies, I forget precisely whom.
> > > GIMPS is very close to the 10^7 record, having churned
> > > out several fairly close to that size.
> >
> > Oh, well, never too old to learn. But in that case determined ways are the
> > best. And Mersenne primes are the way to go, because those are the easiest
> > to prove prime.
>
> Are they easier to prove than Generalised Fermat Numbers? Or than
> Generalised Eisenstein Fermat Numbers? Please explain quantitatively
> how.
>
> I don't believe they're the way to go at all, because the candidates
> grow too quickly (complete with a decrease in the density), and they
> cannot be effectively sieved. Every individual number must be trial−
> factored before testing. If you want to attack those targets then use
> a family which won't end up being twice as large after a hundred
> thousand failed tests.

You may be right − you know more about these things than I do − but
is it not the case that for several hundred years now the title of
Largest Known Prime has been held by an uninterrupted succession of
Mersenne primes?

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Gerry Myerson (gerry@xxxxxxxxxxxxxxx) (i −> u for email)
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