Re: Computability

Source: http://sci.tech−archive.net/Archive/sci.math/2008−01/msg02064.html

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- *From*: The Dougster 22044 <DGoncz@xxxxxxxxxxxx>
- *Date*: Mon, 14 Jan 2008 16:42:38 −0800 (PST)

On Jan 14, 4:46 am, quasi <qu...@xxxxxxxx> wrote:

> On Mon, 14 Jan 2008 04:14:39 −0500, quasi <qu...@xxxxxxxx> wrote:
>
>> On Sun, 13 Jan 2008 20:02:36 −0800 (PST), The Dougster 22044
>> <DGo...@xxxxxxxxxxxx> wrote:
>>
>>> If (x/y)^p == −1 then (x/y)^2p == 1 and o(x/y,z) = 2p But we
>>> lose information when we write o(x/y,z) = 2p. That doesn't
>>> specify that (x/y)^p == −1. (x/y)^p could be congruent to x
>>> for
>>> all we know! It just doesn't say.
>>
>> Right.
>>
>> Let me try to restate your conjecture ...
>>
>> For greater simplicity, I won't bother with the order function.
>> Instead, I'll just use the divisibility relation.
>>
>> Dougster's conjecture:
>>
>> There do not exist positive integers x,y,z such that
>>
>> (1) $x < y < z < x+y$

(2) x,y,z, are pairwise coprime

(3) z − y is not a multiple of x

(4) For some prime p > 2,

x | z^p − y^p
y | z^p − x^p
z | x^p + y^p

Remarks:

(1) For p = 3, your conjecture holds for z <= 1000.

(2) As you've previously noted, if a proof of your conjecture could be had, that would yield an instant proof of FLT, however the known truth of FLT does not appear to yield a proof of your conjecture.

(3) As far as trying to prove your conjecture, I would start with a fixed prime, for example p = 3.

quasi

===
In the future, for new posts, please start the subject line with a prefix of "−− ". By using this convention, such posts can be quickly recognized as "non−spam". Thanks.
===

Well, it appears that your conjecture fails.

> Here's a counterexample:
>
> (x,y,z) = (43, 638, 659)
>
> with p = 7.

Well, I wrote a check(x,y,z) function just for this counterexample, and no, it doesn't check out. I am flagging five conditions:

PASS: x < y < z < x+y
PASS: (x,y) = (y,z) = (z,x) = 1
PASS: (o(x/y,z), o(z/x,y), o(z/y,x)) = (2p, p, p)
PASS: (x/y)^p mod z == −1
FAIL: x + y − z = 0 (because x == y == z mod p here)

Hm. Some days when I am riding my bicycle I seem to see an answer to this problem, a contradiction buried here that would prove FLT. Maybe one day it will come to me, or to one of you.

Note, 43 == 638 == 659 == 1 mod 7.

Do any readers here tinker with Bayesian statistics? You see, if

p(a union b) = p(a)*p(b)/p(a intersect b) (is this even right?)

in tests, as we climb higher and higher, beyond 659, toward 65535, then we may start looking for a link between conditions a and b. That is, say, a is "x < y < z < x+y", and b is "(x/y)^p == −1 mod z), or some such. Like this pseudocode:

```
t:= 0
for x = 1 to lim
for y = 1 to lim
for z = 1 to lim
t := t + 1
a := ( x < y < z < z+y)
b := ( gcf(x,y) = gcf(y,z) = gcf(z,x) = 1)
c := ( ( p := o(x,y,z)/2) = o(z,x,y) = o(z,y,x) = p)
d := ( power(x,y,z, o(x,y,z)/2) = z − 1 )
(e := mod(x,p) + mod(y,p) − mod(z,p) = 0) if c: rem if signature
valid
f := any other derivable condition(s)
store ( p, x, y, z, a, b, c, d, e ): rem analyze later
display ( p, x, y, z, a/t, b/t, c/t, d/t, e/t ): rem look for
trends
next z
next y
next x
browse stored file...and sort a−e in decreasing order of probability
```

trends...

Doug
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