Re: A fairly simple proposition

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dgoncz@aol.com (Doug Goncz) wrote in message
news:<20041114082048.07117.00000599@mb−m10.aol.com>...
> *Well, I recall something like if gcd(a,b,c)=1 then gcd(a+b, c−a, c−b)=1...*
>
> *A counterexample woudl certainly be useful, but I'd like to hear some theory.*
> *It's really pretty bare. Just the two conditions gcd(a,b,c)=1 and a<b<c<(a+b)*
> *do produce c−a !== 0 (mod b) OR c−b !== 0 in my searches to c=101. But why*
> *would that be? I haven't found a counterexample.*
>
> *What's the symbol for OR? V? or \/?*
>
> *Restating:*
>
> *Given*
> *0<a,b,c*
> *a<b<c<(a+b)*
> *gcd(a,b,c)=1*
>
> *Proposition:*
> *c−a !== 0 (mod b) \/ c−b !== 0 (mod a)*
>
> *Proposition true? Counterexample? Discussion?*

c−a == 0 (mod b) => c = a +mb
c−b == 0 (mod a) => c = b +na

a < b < c <a+b

a< b < a +mb < a+b
a< b < b +na < a+b
=> 0 < m,n < 1
so c cannot be an integer.