

# Re: A GCD question

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- *From:* amzoti <[amzoti@xxxxxxxxxx](mailto:amzoti@xxxxxxxxxx)>
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On Jul 6, 3:34 pm, Jeremy Boden <[JeremyBo...@xxxxxxxxxx](mailto:JeremyBo...@xxxxxxxxxx)> wrote:

I know it's easy to find the GCD of two integers using Euclid's algorithm;  
it's not much more difficult to find the GCD if two polynomials in a similar way.

But is it possible to do this for a multinomial?  
I've been trying and failing to simplify  
 $\text{GCD}(x + y, x^2 - x*y + y^2)$  – is this doomed to fail?

Regards,  
Jeremy

Yes – it is possible.

Mathematica has a `PolynomialGCD[x + y, x^2 - x*y + y^2]` that returns 1 as the result.

Also see: <http://icm.mcs.kent.edu/research/gcddemo.html>

For a reference:

Three New Algorithms for Multivariate Polynomial GCD

T. Sasaki, M. Suzuki  
Journal Title: Journal of Symbolic Computation  
Date: 1992  
Volume: 13  
Issue: 4  
p. 395 – 412

HTH – A