

Re: Binomial Theorem for $X^n + Y^n$

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From: Russell E. Rierson (*analog57_at_yahoo.com*)

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deepkdeb@yahoo.com (Deep K. Deb) wrote in message
news:<4a3bc6b5.0408220822.ba1d7a7@posting.google.com>...
> *analog57@yahoo.com (Russell E. Rierson) wrote in message
news:<c410ffa5.0408212104.51a16dfb@posting.google.com>...*

- > *Very interesting observations. It can further be simplified.*
- > *As an example, write $x^5 + y^5 = Q5/16$*
- > *Then $x^5 + y^5 = Q5/2^{(5-1)}$*
- > *So in general, $x^m + y^m = Qm/2^{(m-1)}$*
- > *Now, the challenge is to write Qm in more compact form so that it can*
- > *be recognized that $Qm/(2^{m-1})$ cannot be an m -th power of an integer*
- > *without applying FLT.*

If $A = B$

$$[(A+A)/2]^3 + [(A-A)/2]^3 = [(A+A)/2]^3 + 0 = A^3$$

$$[(A+A)/2]^m + 0 = A^m$$

If $B = n \cdot A$

$$[(A + n \cdot A)/2]^m + [(A - n \cdot A)/2]^m = [(A \cdot (n+1))/2]^m + [(A \cdot (1-n))/2]^m$$

...

$$x+y = A$$

$$x-y = B$$

$$(A+B)/2 = x$$

$$(A-B)/2 = y$$

$$\text{Let } B = A + K$$

$$A+B = 2A+K$$

$$A-B = -K$$

sci.math: Re: Binomial Theorem for $X^n + Y^n$

$$[(2A+K)/2]^m + [(-K)/2]^m$$

$$x^m + y^m = (A + K/2)^m + (-K/2)^m$$