Binomial expansion for negative fractional powers pdf

The contents of the Binomial theorem for factional exhibitors Example above are summarized at once for all fractional exhibitors α Alpha α. Let's α α will be a real number and KK K is a positive integer. Identify (K) α (α-1) ⋯ (α to 1)k!. binomalpha-ke frac-alpha (Alpha-1)kdota (Alpha-to-1) . (C)) K.α (α-1)⋯ (α-to-1). Then the same analysis, as in the example, gives Let α'pq y alpha qq qq α qp be a rational number (p,qp,qp, qp, q integers). Then (1 x)α x 1 x (α) (α-1)2⋯-∑k∞ (k)xk, (1'x) Alpha α sum_1 Alpha x (α) (α-1) x2'⋯'⋯'0∑∞ (ks)xk, which converges for |x|'lt;1 qlt; 1 |x|'lt;1. Binomial coefficients (p/qk) binp/q'k (kp/q) can sometimes be rewritten in interesting ways. Let k k k be a positive integer. Then (No1/2k) (No12) · (No32)⋯ (2k-12) to! » (No1)k1·3⋯(2 1)2kk! » (No1)k1·3⋯ (2k-1)2·4⋯ (2k)» (1)k (2k)! (2·4⋯ (2k))2' (No14)k (2kk). Start (beginning) binom-1/2'k (frac) left (-Frac12-right) cdot left (-frac32right) cdots left (-Frac2k-1'2'right) 3 kdota (2k-1) 2kh! 1 Big (2 cdot 4 cdots (2k)2 (left (-Frac14)right) End (k'1/2) q! (No21)· (No23) ⋯ (22k-1⋯·) ·4⋯ (2k)1·3⋯ (2k-1) (No1)k (2·4⋯ (2k) 2 (2k)! (No41)k (k2k). Also, it can be written with a double factor just like (No 1)k (2k)1)!! (2k)!!. (-1) To frak (2k-1)!! (2k)!! (1)k (2k)!! (2k-1)!! . Thus, 11'x'∑k'0∞ (2kk) (x4)k sum_ frac1sqrt1'xe left (-frak x4'right)1'x 1 x 0∑∞ (k2k) (4x)k for |x|'lt;1 x lt;1 |x|'lt;1. Replacing the 4x -4x 4x for x x x gives the result that the generating function for central binomial coefficients is 11-4x-∑k∞ (2kk)xk. □ «frac1»sqrt»1-4x»» (»sum_»k'0'infty «binom»2k'k» x'k. square 14x 1 k0∑∞ (k2k)xk. □ Extend $'frac{2}' feature (2x - 3) (2x-1) in a series of powers from $$x to $$x x $2. The withes is a set of values x, for which this extension is valid. I have come across this question and would like to ask how most of you will address it. I've never seen one of this form before, as this is my first time tackling fractional or negative indices. So I kindly ask to correct me where I'm wrong in my attempt: My attempt: I rewrote $ (frak{2} (2x - 3) (2x-1) $2 (2x-3) and replaced it with one of my formula $1 and nx (n-1)x'2'2! $ And replace it with one of my own $ $ While leaving 2 outside: $$2' (2x-3)'-1'equiv 2'1' (-1)(2x)-frac (-1) (-2 $x x) how works all that from I got: $2 1-2x-4x-$2 $$$, hence the extension is valid when the $x $ is between ${1}{4} ${1}{4}$and $Frac{1}{4}$ and recorded it as an inequality: $$ - th frac{1}{4} q lt; x q lt; frak{1}{4} $$ The second attempt I went ahead and worked it out with partial fractions. It seems to make a lot more sense. $$'frac{2}' (2x - 3) (2x-1) $2 -A (2x-1)-B (2x-3)$$$2, frac{2} (2x-1) - frac{2} (2x-3) $$$ And rewrite again. $2 (2x-1) - 2 (2x-3)-1$2'-1' (2x-1{2}{3}) $$-frac{1}{2} (-1)(2x)-frak (-1) (-2x{1}{2}) (2x) $${2}{3}{1}{6} 1 (-{2}{3}{2}{3}{1}{2} 1) (Frac{2}{3}{2}{3}x)) $$$I'm not sure if I'm doing it right from here and onwards $frak{1}{2} 1-2x-4x2 - frac{1}{6} 1-frac{2}{3}x-frac{2}{3}x2) and my final answer. $-frac{1}{2} - x - 2x{2}{27}2 - frak{1}{6} - frac{1}{9}x - frac{2}{27}x2, frak{2}{3} - frak{8}{9}x - frac56x'2{27} $$ sorry if it's completely wrong, it's literally my first time trying it, however it makes sense to consult an experienced person before entering the topic of thinking I understand when I don't. This is probably the wrong proof for you, but I'll post it anyway. Note that $f (x) (a'x) is an analytical function in the $x$for arbitrary a,n, since in itself, it is a single-term power series. If it's an analytical function, it should follow Taylor's theorem. Now, if we take the extension around the $$x,' we'll $f get $$(a'x) $f' (0) on n-1$, points e-k (k) (0)-n (n-1) (n'2)-points (n'k-1)a'n-k'$ or $$(a'x sum_)) points (n'k-1) a'n-k'x'n$$$$$$(a'x) sum_ where $f's (x)$ is the first derivative of $f (x)$, $f' (x)$ second derivative, etc. $f e(k) (x)$ is a $k of the $1,000 derivative of $f (x)$. EXAMSCLASSESCRACKRESOURCES Hi people, I've been teaching this for years and have never had any problems, but I've had some international students do it a little differently, and despite the fact books are always said to do it their own way, their method always gives the same answer (at least in my experience so far). Example: Expand (2 x) , I always took out 2 to give the following: 1/2 (1 x/2) and then expand as usual and then multiply half in sweat. 1/2 (1 x/1) . x/2 (-1) (-2)/2! . (x/2) - 2 (-1)(-2)(-3)/3! . (x/2) 3 ...) 1/2 - x/4 and x 2/8 - x 3/16 ... 2 These students use a combination of major extensions, including 2, not to take it out of the bracket. (2 x) - 2 -1 (-1) . 2 to 2 euros. x (-1) (-2)/2! . 2 to 3 euros. x-2 (-1) (-2)(-3)/3! . 2 to 4 euros. X-3 ... x 1/2 - x/4 x 2/8 - x 3/16 ... valid x zlt; 2 Any comments about the suitability of this method? Should I make them factor bracket first, or the second method is absolutely normal? Just wondering if someone can explain why students shouldn't do the above for negative/factional credentials. Hello, Adichem. (Original post Adishem)). ... I don't see any problem with him. Let's look at what happens when we apply these two methods to a more general extension for so the standard A-level method is and your students claim that. Just note that to avoid confusion, product n(n-1)... (n-k-1) is n when c1, and it is equal to 1 (empty product) when KP0. Their assertion is correct, and here's the proof: (standard level method) (taking a'n inside the sigma) (index rules) (more index rules) However, although their method will work, the other question is whether it will be accepted by people marking their paper. I think it will probably be accepted - there is a question of this kind on the OCR C4 January 2010 question 5 (see page 2 and page 14), where in (ii) (a) hence the method uses a standard level method, but otherwise the method uses an alternative method given to your students. Students. binomial expansion for negative fractional powers pdf. binomial expansion formula for negative fractional powers

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