The Rogers Ramanujan Continued Fraction And A New

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The Rogers Ramanujan Continued Fraction

The Rogers–Ramanujan continued fraction is a continued fraction discovered by Rogers (1894) and independently by Srinivasa Ramanujan, and closely related to the Rogers–Ramanujan identities. It can be evaluated explicitly for

a broad class of values of its argument.
Domain coloring representation of the convergent

Rogers–Ramanujan continued fraction - Wikipedia

The Rogers-Ramanujan continued fraction is a generalized continued fraction defined by (1) (Rogers 1894, Ramanujan 1957, Berndt et al. 1996, 1999, 2000). It was discovered by Rogers (1894), independently by Ramanujan around 1913, and again independently by Schur in 1917.

Rogers-Ramanujan Continued Fraction -- from Wolfram MathWorld

The Rogers–Ramanujan continued fraction possesses a rich and beautiful theory containing fascinating and surprising results, and so the purpose of this paper is to provide a survey of our present knowledge about R(q), with a modest emphasis on results found in the lost notebook.

The Rogers–Ramanujan continued fraction - ScienceDirect

A survey of many theorems on the Rogers-Ramanujan continued fraction is provided. Emphasis is given to results from Ramanujan's lost notebook that have only recently been proved.

The Rogers-Ramanujan continued fraction — University of ...

More about the Rogers-Ramanujan continued fraction can be found in: Andrews, G. E., Berndt, C., Jacobsen, L. & Lamphnere, R. L.

(1987). Variations on the Rogers-Ramanujan continued… Andrews, G. E., Berndt, C., Jacobsen, L. & Lamphnere, R. L. (1992). The Continued Fractions Found in the ...

Ramanujan's Early Work on Continued Fractions | by Jørgen ...

Ramanujan's lost notebook contains many further alluring and remarkable results on the Rogers–Ramanujan continued fraction, and some of these have been proved by Andrews,, Berndt and H. H. Chan, Berndt, Chan, and L.– C. Zhang, Huang, S.–Y. Kang,, S. Raghavan, Raghavan and S. S. Rangachari, Ramanathan –, and Son,.

SOME THEOREMS ON

THE ROGERS–RAMANUJAN CONTINUED FRACTION ...

Ramanujan’s octic continued fraction (p = 2) and the octahedral equation The general form is given by, (The example given in the Introduction, as well as the two others, was just the case $\tau = \sqrt{-1}$.)...

0015: Article 5 (Ramanujan's

continued fractions) - A ...

The Rogers–Ramanujan identities appeared in Baxter's solution of the hard hexagon model in statistical mechanics. Ramanujan's continued fraction is. 1 + q 1 + q 2 1 + q 3 1 + ⋯ = G (q) H (q) . {\displaystyle 1+ {\frac {q} {1+ {\frac {q^ {2}} {1+ {\frac {q^ {3}} {1+\cdots }}}}}}= {\frac {G (q)} {H (q)}}.}

Rogers–Ramanujan identities - Wikipedia

Note that for the famous Rogers-Ramanujan continued fraction 1 23 (,0,) 11 1 1 qz q z q z fz q both formulae (2.10) and (2.17) coincide. For the little q Schröder numbers the corresponding continued fractions are 1(1)/(1)/23 (,1,) , 1/ 1/ 1/ qzq qzq fz q zq zq zq

(3.10) 1 2 (,1,) , and (,1,) .

Ramanujan’s q-continued fractions and Schröder-like numbers

On Ramanujan's Continued Fraction K G Ramanathan, Acta Arithmetica, 43 (1984) pages 209-226. Continued Fractions and the Fibonacci Numbers In this section we will take a closer look at the links between continued fractions and the Fibonacci Numbers. Squared Fibonacci Number Ratios

Continued Fractions - An introduction

Ramanujan himself hints at this in his second letter to Hardy, when he says concerning (3) “The above theorem is a particular case of a theorem on the continued fraction 1 1+ ax 1+ ax2 1+ ax3

1+ ax4 1+ ax5

Ramanujan's contribution to continued fractions

in (1.6), we obtain the Rogers-Ramanujan continued fraction. Furthermore, setting b =λ=1andb=0,λ=1in(1. 6)gives the Ramanujan's cubic andthe G¨ollnitz–Gordon continued fraction, respectively. In this paper, we mostly investigate these threecontinuedfr actions. Onpage43inhis lostnotebook[23]wefind anothercontinuedfracti onforquotients

APPLICATIONS OF THE HEINE AND BAUER-MUIR TRANSFORMATIONS ...

The Rogers-Ramanujan cfrac is, r = r(τ) = q1 / 5 1 + q 1 + q2 1 + ⋱.. If q = exp(2πiτ), then it is known that, 1 r − r = η(τ / 5) η(5τ) + 1. 1 r5

− r5 = (η(τ) η(5τ))6 + 11. with the Dedekind eta function, η(τ).

modular forms - Rogers-Ramanujan continued fraction in ...

Sthen the Rogers-Ramanujan continued fraction, R(y), diverges at y. S is an uncountable set of measure zero. It is also shown that there is an uncountable set of points, G ⊂ Y S, such that if y ∈ G, then R(y) does not converge generally.

ON THE DIVERGENCE OF THE ROGERS-RAMANUJAN CONTINUED ...

1+⋯ From such a humble beginning, Ramanujan wrote down several generalizations and special cases, in the process sometimes rediscovering some continued fractions found earlier by Gauss, Eisenstein and Rogers. As was his way, he did not record his proofs. Proofs were provided over the years, by many mathematicians.

ON A CONTINUED FRACTION OF RAMANUJAN

The Rogers–Ramanujan continued fraction has a representa-tion as an infinite product given by $q^{1/5} \prod_{j=1}^{\infty} (1 - q^j)^{(j\ 5)}$ where $|q| < 1$ and $(j\ p)$ is the

Legendre symbol. In his letters to Hardy and in his notebooks, Ramanujan recorded some exact numerical values of the Rogers–Ramanujan continued fraction for specific values of q.

Explicit evaluations of a level 13 analogue of the Rogers ...
FINITE ROGERS-RAMANUJAN TYPE CONTINUED

FRACTIONS HELMUT PRODINGER Dedicated to Peter Paule on the occasion of his 60th birthday ABSTRACT.New finite continued fractions related to Bressoud and Santos polynomials are established. 1. INTRODUCTION Define, as it is common today, (x;q)n:= (1 x)(1 xq)...(1 xqn 1), where we assume

FINITE ROGERS-RAMANUJAN TYPE CONTINUED FRACTIONS

In the spring of 1976, George Andrews of Pennsylvania State University visited the library at Trinity College, Cambridge, to examine the papers of the late G.N. Watson. Among these papers, Andrews discovered a sheaf of 138 pages in the handwriting of Srinivasa Ramanujan.

This manuscript was soon designated, "Ramanujan's lost notebook." Its discovery has frequently been deemed the mathematical ...