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 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

The Rogers–Ramanujan continued fraction 1. Introduction The first infinite continued fractions that one likely encounters in a course in elementary number... 2. The convergence of R (q) In his third notebook [25, p. 383], Ramanujan claimed that if u = R (q), then u2 + u −1=0... 3. The primary ...

The Rogers–Ramanujan continued fraction - ScienceDirect

N2 - 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. AB - A survey of many theorems on the Rogers-Ramanujan continued fraction is provided.

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

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 ...

Abstract By guessing the relative quantities and proving the recursive relation, we present some continued fraction expansions of the Rogers–Ramanujan type. Meanwhile, we also give some J-fraction...

On some continued fraction expansions of the Rogers ...

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

The following continued fraction (15) was established by M. S. M. Naika et al. [9] as a special case of a fascinating continued fraction identity recorded by Ramanujan in his Second Notebook [10]: (15)

New Properties for The Ramanujan'S Continued Fraction of ...

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's first continued fraction is Corollary 1 from Section 25, Chapter 12 in Ramanujan's second notebook, a special case of a much more general theorem (Entry 39, Chapter 12). The theorem is...

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

Ramanujan recorded four reciprocity formulas for the Rogers–Ramanujan continued fractions. Two reciprocity formulas each are also associated with the Ramanujan–Göllnitz–Gordon continued fractions and a level-13 analog of the Rogers–Ramanujan continued fractions.

Properties of reciprocity formulas for the Rogers ...

On page 26 in his lost notebook, Ramanujan states an asymptotic formula for the generalized Rogers-Ramanujan continued fraction. This formula is proved and made slightly more precise.

On the Generalized Rogers-Ramanujan Continued Fraction ...
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 threecontinuedfractions. Onpage43inhislostnotebook[23]wefindanothercontinuedfractionforquotients

APPLICATIONS OF THE HEINE AND BAUER-MUIR TRANSFORMATIONS ...
Ramanujan recorded many beautiful continued fractions in his notebooks. In this paper, we derive several indentities involving the Ramanujan continued fraction c (q), including relations between c (q) and c (q n). We also obtain explicit evaluations of for various positive integers n. Send article to Kindle

A note on a continued fraction of Ramanujan | Bulletin of ...
On some continued fraction expansions of the Rogers–Ramanujan type 345 Proof In fact, this continued fraction (3.1) fits in the following form: zF (z) = . (3.2) G(z) zq a + zq a + zq a + We define zF (z) z z z = = = = ... G(z) N zq zq a + a + 0 0 zq a + and N = .

On some continued fraction expansions of the Rogers ...
CiteSeerX - Document Details (Isaac Councill, Lee Giles, Pradeep Teregowda): . In his first two letters to G. H. Hardy and in his notebooks, Ramanujan recorded many theorems about the Rogers--Ramanujan continued fraction. In his lost notebook, he offered several further assertions. The purpose of this paper is to provide proofs for many of the claims about the Rogers--Ramanujan and generalized ...

Some Theorems On The Rogers-Ramanujan Continued Fraction ...
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).