

RESULTS ON BASIC HYPERGEOMETRIC SERIES AND CONTINUED FRACTIONS

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Abstract: In this paper, making use of certain known identities, we have established some result involving q -series and continued fractions.

Keywords and Phrases: q -series, identities, continued fraction.

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1. Introduction, Notations and Definition

The q -rising factorial for complex numbers a and q with $|q| < 1$ is defined as:

$$(a; q)_0 = 1$$

$$(a; q)_n = (1 - a)(1 - aq) \dots (1 - aq^{n-1}), \quad n \in \mathcal{N}$$

$$(a; q)_\infty = \prod_{r=0}^{\infty} (1 - aq^r)$$

Ramanujan's Notebooks, especially second 'Lost' Notebook, contain a large number of q -series identities and fascinating results on continued fractions. Through out the paper, some interesting results involving q -series and continued fractions have been established by making use of certain known identities. We need some established results of the paper [3, 4, 5, 6, 7] to obtain certain continued fractions representations.