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CERTAIN RESULTS INVOLVING GENERALIZED MODULAR IDENTITIES

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Abstract: In this paper, making use of certain modular relations due to Ramanujan and G. N. Watson, an attempt has been made to establish some results involving modular relations and continued fractions.

Keywords and Phrases: Modular relation, identity, continued fraction, basic hypergeometric series.

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1. Introduction, Notations and Definitions

Here and throughout the paper, we adopt the standard q-series notation as given in [2]. Let q be a complex number such that $|q| < 1$. For positive integer n, we define

$$(a;q)_n = (1-a)(1-aq)(1-aq^2)...(1-aq^{n-1}),$$

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

and

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

Some times we use the compressed notation;

$$(a_1, a_2, ..., a_m; q)_n = (a_1;q)_n(a_2;q)_n...(a_m;q)_n,$$