IDENTITIES IN ITERATED RASCAL TRIANGLES

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Abstract. In this manuscript we show new binomial identities in iterated rascal triangles. In particular, iterated rascal numbers are closely related to $(1, q)$-binomial coefficients. Finally, we state an open conjecture about the relation between iterated rascal numbers and (p, q)-binomial coefficients.

Contents

1. Definitions

Definition 1.1. *Iterated rascal number*

$$\binom{n}{k}_i = \sum_{m=0}^{i} \binom{n-k}{m} \binom{k}{m} \tag{1.1}$$

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Sources: https://github.com/kolosovpetro/IdentitiesInRascalTriangle

Definition 1.2. $(1, q)$-*Binomial coefficient*

$$\begin{bmatrix} n \\ k \end{bmatrix}^q = \begin{cases} q & \text{if } k = 0, n = 0 \\ 1 & \text{if } k = 0 \\ 0 & \text{if } k > n \\ \begin{bmatrix} n-1 \\ k \end{bmatrix}^q + \begin{bmatrix} n-1 \\ k-1 \end{bmatrix}^q \end{cases} \tag{1.2}$$

2. Introduction

3. Conclusions

Conclusions of your manuscript.

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