

Steven Edwards and William Griffiths
Generalizations of Delannoy and Cross Polytope Numbers,
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Abstract

The Delannoy numbers and the figurate numbers for n -dimensional cross polytopes are doubly-recursive sequences that satisfy the same recursion formula. Using the expression $\sum_{j=0}^n (-1)^j \binom{m-j}{n+k} \binom{n}{j}$, we present an infinite collection of doubly recursive sequences that satisfy the same recursion formula. As a consequence, we prove some binomial identities. Some known integer sequences are subsequences of our sequences, and we give new connections between these sequences.