

# Converging to Gosper's Algorithm

William Y. C. Chen, Peter Paule and Husam L. Saad

**Abstract:** Given two polynomials, we find a convergence property of the GCD of the rising factorial and the falling factorial. Based on this property, we present a unified approach to computing the universal denominators as given by Gosper's algorithm and Abramov's algorithm for finding rational solutions to linear difference equations with polynomial coefficients.

**AMS Classification:** 33F10; 05A19.

**Keywords:** Gosper's algorithm, Abramov's algorithm, universal denominator, dispersion.

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