

# On the Gosper-Petkovsek Representation of Rational Functions

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**Abstract:** We show that the uniqueness of the Gosper-Petkovsek representation of rational functions can be utilized to give a simpler version of Gosper's algorithm. This approach also applies to Petkovsek's generalization of Gosper's algorithm, and its q-analogues by Abramov-Paule-Petkovsek and Böing-Koepf.

**Keywords:** Gosper's algorithm, GP representation, q-Gosper's algorithm, q-GP representation, hypergeometric term.

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