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James G Mc Laughlin* (jmc1aughlin2@wcupa.edu), Mathematics Department, West Chester University, West Chester, PA 19383. *A General Multi-sum Transformation and Some Implications.*

We give a general transformation that allows certain quite general basic hypergeometric multi-sums of arbitrary depth, sums that involve an arbitrary sequence $\{g(k)\}_{k=0}^{\infty}$, to be reduced to an infinite q -product times a single basic hypergeometric sum. For double sums, the sequence $\{g(k)\}_{k=0}^{\infty}$ may be extended to a bilateral sequence $\{g(k)\}_{k=-\infty}^{\infty}$. Various applications are given, including summation formulae for some q orthogonal polynomials, and various multi-sums that are expressible as infinite products. (Received February 09, 2014)