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*Asymptotic identities for additive convolutions of sums of divisors.* Preliminary report.

In a 1916 paper, Ramanujan defined an "additive convolution sum"  $S_{r,s}(n)$ , proved an asymptotic formula for it for all positive integers  $r, s > 1$ , and obtained exact formulas in several cases – connected to the theory of modular forms. He also conjectured that his formula should hold for all real  $r, s > 1$ .

Ramanujan's conjecture was proved in 1927 by Ingham. We will sketch two more proofs of his conjecture. The first proof is quite simple, and improves Ingham's error term to a power savings. The second proof involves the machinery of L-functions, further improves the error terms, and obtains a secondary main term for some ranges of the parameters. (Received September 16, 2019)