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Journal Name:	British Journal of Mathematics & Computer Science
Manuscript Number:	2013_BJMCS_7421
Title of the Manuscript:	EVALUATION OF CONVOLUTION SUMS AS $\sum_{m=1}^{n-1} m\sigma_i(m)\sigma_j(n-m)$
Type of the Article	Original Research Article



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PART 1: Review Comments

	Reviewer's comment This paper deals with several identities involving convolutions of the sum-of-divisor function. The proofs rely on previous identities established by various authors, such as Ramanujan, Lahiri, Williams, and on the arithmetic properties of the Ramanujan tau-function. The resulting paper is somewhat a catalog of many identities essentially involving even and odd divisors. The Authors provides adequate proofs for the theorems, and the data are sufficiently robust. The references are well-quoted, relevant and adequate.	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	None.	
Minor REVISION comments	This manuscript is quite well-written, but some applications of these identities are missing. It will be fine if the author could add at least one application, but this is optional. <u>Example 1.</u> Number of solutions of certain Diophantine equations as in [2]. <u>Example 2.</u> It is well-known that values at negative odd integers of the Dedekind zeta-function of a real quadratic field K may be computed with the help of the sigma-function (see the reference [1] below). As an example, we can see in [1, pp. 10] that, if K is a real quadratic field of discriminant $d > 0$, then $\zeta_K(-5) = \frac{1}{d^{1/2}} \left(\sum_{ a < d^{1/2}} \sigma_5(d-a^2) + (24 + \dots) \right)$	Thank you for your comments. It is good suggestions to put the examples, but I do not know the Diophantine equations and Dedekind zeta-function exactly, so I can not deduce any result, I am sorry.



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	$32 \cdot (d/2) \sum_{\substack{ a < d^{1/2} \\ a \equiv d \pmod{2}}} \sigma_5((d-a^2)/4) \right\}.$ These sums are slightly related to those of this manuscript. One may find others examples in some others branches of number theory (maybe computational number theory, for instance). [1] H. COHEN, J-M. DESHOUILERS, J. MARTINET, La fonction somme des diviseurs, <i>Seminaire de Théorie des Nombres de Bordeaux</i> (1972), 1—10. [2] D. Kim, A. Kim, Application of convolution sum $\sum_{k=1}^{N-1} \sigma_1(k) \sigma_1(2^n N - 2^n k),$ <i>J. Appl. Math. & Informatics</i> 31 (2013), 45—54.	
<u>Optional/General</u> comments		