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A recursive formula for sums of squares,
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Abstract

If t si a positive integer and n is a non-negative integer, let $r_t(n)$ denote the number of representations of n as a sum of t squares of integers. (Representations that differ only in order of terms are considered distinct.) A vast literature exists that is devoted to this subject. (See [3].)

In [1], Ewell used elementary means to obtain a formula for $r_3(n)$ in terms of $q_0(n)$, the number of self-conjugate partitions of n. Let the integer $t \geq 4$. In this note, we extend Ewell's result, obtaining a formula for $r_t(n)$ in terms of $r_{t-3}(n)$ and $q_0(n)$.