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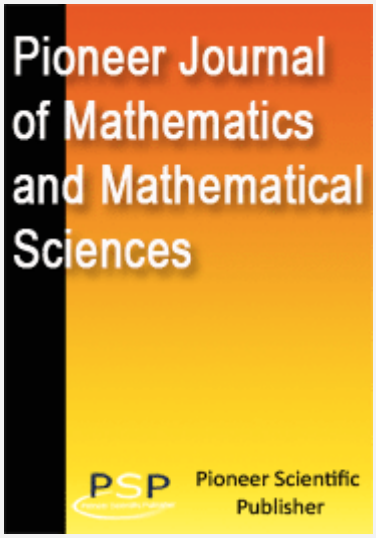

FORMULA FOR WEIGHTED QUADRATIC PARTITIONS MOD P^2

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Abstract

Let $Q(\mathbf{x}) = Q(x_1, x_2, ..., x_n)$ be a quadratic form over $\mathbb{Z}$, p be an odd prime. Let $V = V_Q = V_{p^2}$ denote the set of zeros of $Q(\mathbf{x})$ in $\mathbb{Z}_{p^2}$ and $|V|$ denotes the cardinality of V. Set $\phi(V_{p^2}, \mathbf{y}) = \sum_{\mathbf{x} \in V} e_{p^2}(\mathbf{x} \cdot \mathbf{y})$ for $\mathbf{y} \neq \mathbf{0}$ and $\phi(V_{p^2}, \mathbf{y}) = |V_{p^2}| - p^{2(n-1)}$ for $\mathbf{y} = \mathbf{0}$. In this paper, we give a formula for the calculation of the function $\phi(V, \mathbf{y})$.

Keywords and phrases: weighted quadratic partitions.