A PROPERTY OF DIAGONAL AND QUASI-DIAGONAL FORMS

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The following theorem holds.

Let k be a positive integers and $F_i(x_i)$ be forms of degree k in disjoint vectors of variables satisfying the following conditions.

(i) all forms F_i are non-singular,

(ii) not all forms F_i are semi-definite of the same sign.

Then there exists s_0 such that for every s all integers represented by the sum of $F(x_i)$ for i from 1 to s over $\mathbb{Z}$ are represented by the sum of $F(x_i)$ for i from 1 to s_0 over $\mathbb{Z}$.

If all x_i are of dimension 1, or $k < 4$, the assumptions (i) and (ii) are not needed.