

Let $v_1, \dots, v_k \in \mathbb{Z}^k$ be k k -dimensional vectors with integer coordinates. The number of lattice points contained within the fundamental domain defined by these vectors is given by the unsigned matrix determinant

$$\begin{vmatrix} | & | & & | \\ v_1 & v_2 & \cdots & v_k \\ | & | & & | \end{vmatrix}.$$