KEYWORD DOCUMENT

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Key Result 1: Parseval's Identity. Suppose $\{e_k\}_{k\in\Gamma}$ is an Orthonormal basis of a hilbert space V and $f, g \in V$. Then

(a) $f = \sum_{k\in\Gamma} \langle f, e_k\rangle e_k$;
(b) $\langle f, g\rangle = \sum_{k\in\Gamma} \langle f, e_k\rangle \overline{\langle g, e_k\rangle}$;
(c) $\|f\|^2 = \sum_{k\in\Gamma} |\langle f, e_k\rangle|^2$