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Frobenius product

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Synonym	Frobenius inner product
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Defines	Frobenius norm

If $A = (a_{ij})$ and $B = (b_{ij})$ are real $m \times n$ matrices, their *Frobenius product* is defined as

$$\langle A, B \rangle_F := \sum_{i,j} a_{ij} b_{ij}.$$

It is easily seen that $\langle A, B \rangle_F$ is equal to the trace of the matrix $A^\top B$ and AB^\top , and that the Frobenius product is an inner product of the vector space formed by the $m \times n$ matrices; it is the *Frobenius norm* of this vector space.