Why

[1]

Definition

The *permanent* of a matrix $A \in \mathbf{R}^{n \times m}$ is

$$\sum_{\sigma \in S_n} \prod_{i=1}^{n} A_{i,\sigma(i)}$$

where S_n is the symmetric group of degree n (see Permutations).

Notation

We denote the permanent of A by $\text{perm}(A)$.

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[1]Future editions will include. The reasoning is that several counting problems to do with graphs reduce to permanents of the adjacency matrix.

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