DATE

Similar Matrices

Let A and B be square matrices of order n. Then B is said to be similar to A if there exists a non-singular matrix P such that

$$\boxed{B = P^{-1}AP}$$

Properties

* A matrix is similar to itself

* If A is similar to $B \Rightarrow B$ is similar to A.

* Equivalence relation:
A is similar to B, B is similar to $C \Rightarrow A$ is similar to C

* If A is similar to B
$\Rightarrow$ determinant A = determinant B
i.e. $|A| = |B|$

* A is similar to $B \Rightarrow$ trace A = trace B.

* A is similar to $B \Rightarrow A^m$ is similar to B^m, $m \in I_+$

* If A is similar to B then A is invertible iff B is invertible.
Then A^{-1} is similar to B^{-1}.