

Uniqueness of an Inverse Matrix

If A is an invertible matrix, then its inverse is unique. The inverse of A is denoted by A^{-1} .

Proof

If A is invertible, then it has at least one inverse B such that

$$AB = I = BA$$

Assume that A has another inverse C such that

$$AC = I = CA$$

Demonstrate that B and C are equal.

$$AB = I$$

$$C(AB) = CI$$

$$(CA)B = C$$

$$IB = C$$

$$B = C$$

Consequently $B = C$ and it follows that the inverse of a matrix is unique.