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Matrix Algebra

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- Types of matrices

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- Echelon transforms

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- How to find inverse: I
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Appendices

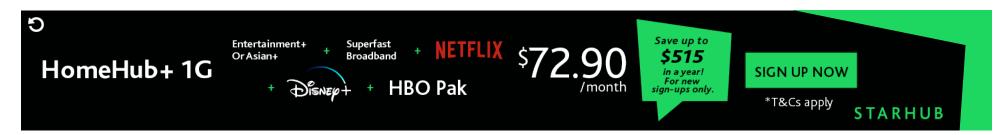
- Matrix theorems
- Matrix notation

Matrix Theorems

Tutorials

Here, we list without proof some of the most important rules of matrix algebra - theorems that govern the way that matrices are added, multiplied, and otherwise manipulated.

AP statistics



Notation

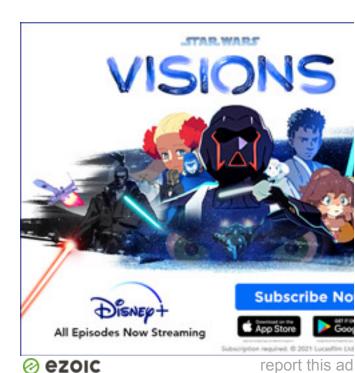
- A, B, and C are matrices.
- A' is the transpose of matrix A.
- A⁻¹ is the inverse of matrix A.
- I is the identity matrix.
- x is a real number.

Matrix Addition and Matrix Multiplication

- **A** + **B** = **B** + **A** (Commutative law of addition)
- A + B + C = A + (B + C) = (A + B) + C (Associative law of addition)
- (Associative law of multiplication) ■ ABC = A(BC) = (AB)C
- (Distributive law of matrix algebra) A(B+C) = AB + AC
- x(A + B) = xA + xB



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Transposition Rules

- (A')' = A
- (A + B)' = A' + B'
- (AB)'=B'A'
- (ABC)' = C'B'A'

Inverse Rules

- AI = IA = A
- $AA^{-1} = A^{-1}A = I$
- $(A^{-1})^{-1} = A$
- $(AB)^{-1} = B^{-1}A^{-1}$

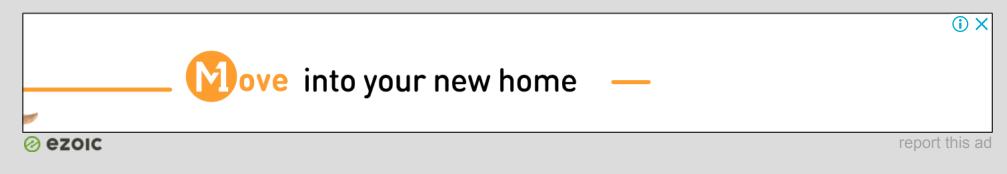
 $(A')^{-1} = (A^{-1})'$

• $(ABC)^{-1} = C^{-1}B^{-1}A^{-1}$

Last lesson

Next lesson





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