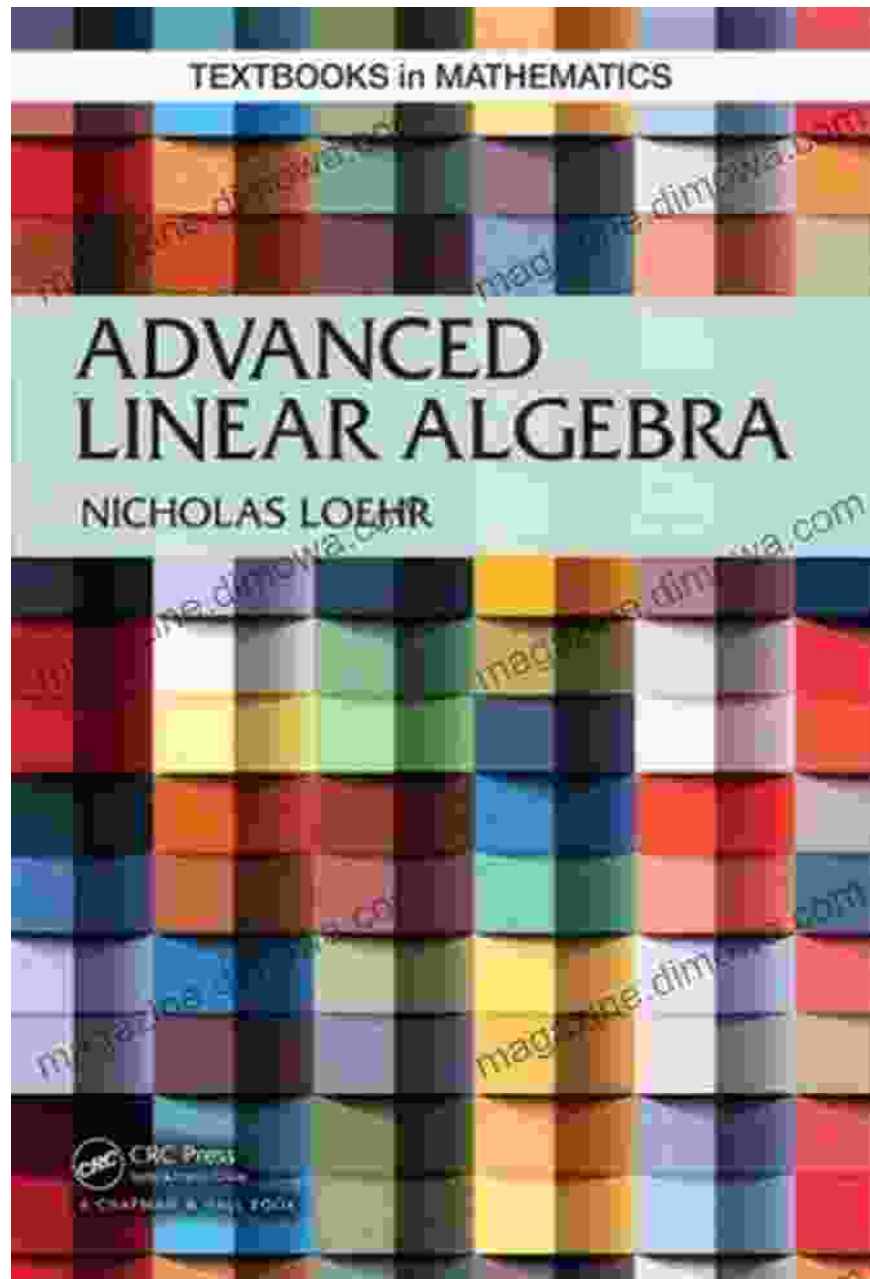
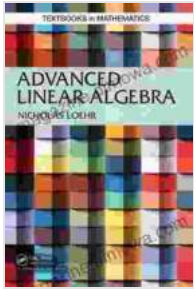


Delve into the Complexities of Advanced Linear Algebra with Our Comprehensive Textbook



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by Jo Greig

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Chapter Outline

Chapter 1: Vector Spaces and Linear Transformations

- Definition of vector spaces
- Linear independence, bases, and dimension
- Linear transformations and their properties
- The matrix representation of linear transformations

Chapter 2: Matrices and Determinants

- Matrices and their operations
- Determinants and their properties
- Invertible matrices and the Cramer's rule
- Eigenvalues and eigenvectors

Chapter 3: Canonical Forms

- Diagonalization of matrices
- Jordan canonical form
- Applications in solving systems of differential equations
- Bilinear forms and quadratic forms

Chapter 4: Inner Product Spaces

- Inner product spaces and their properties
- Orthogonality and orthonormal bases
- Gram-Schmidt orthogonalization
- Applications in geometry and physics

Chapter 5: Multilinear Algebra

- Multilinear forms and tensors
- The exterior algebra and the Grassmann algebra
- Applications in differential geometry and algebraic topology
- Homology and cohomology

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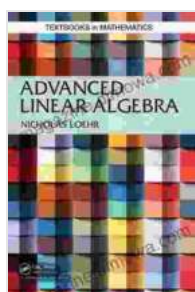
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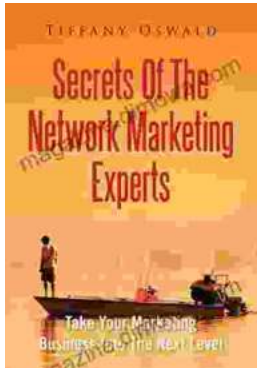
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