



METADATA

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Abstract

The textbook at first covers material on complex numbers, with an emphasis on their geometric representation, their properties, the roots of unity and the Fundamental Theorem of Algebra. Then, the algebra of matrices is covered, with a discussion of Gauss' elimination method and its applications. A separate chapter is devoted to the study of the determinants of square matrices, followed by a study of the solutions of linear systems. The vector space R^n is studied, in particular R^2 and R^3 . The definitions of lines and planes in R^n are carefully given. The solutions

of linear systems are interpreted in R^2 and R^3 always giving an emphasis to the geometric interpretation. A chapter discussing linear functions follows and finally a chapter on eigenvectors, eigenvalues and matrix diagonalization. The textbook incorporates the use of Mathematica in a separate section in each chapter. In addition, each chapter includes a separate section with a wealth of solved exercises, while extensive hints for the exercises are given in the Appendix. Each chapter has its own bibliography. An index of terms and symbols is included.

