

Math 244 Contents

Chapter1: Matrices

1. Matrices and Matrix Operations
2. Elementary Row Operations
3. Inverse of Matrix
4. Special Matrices

Chapter2: Determinants

1. Definition of Determinant
2. Properties of Determinants
3. The Adjoint Matrix

Chapter3: Systems of Linear Equations

1. Gauss and Gauss-Jordan Methods
2. Homogeneous systems of linear equations
3. Cramer's Rule

Chapter4: Vector Spaces

1. Definition of a Vector Space
2. Subspaces
3. Linear Combination and Spanning Sets
4. Linear Dependence & Linear Independence
5. Basis and Dimension
6. Coordinates and Change of Basis
7. Rank of the Matrix

Chapter5: Inner Product Spaces

1. Definition of Inner Product
2. Orthogonality
3. Orthonormal Basis

Chapter6: Linear Transformations

1. Basic Properties
2. Kernel and Image of Linear Transformation
3. Matrix of Linear Transformation

Chapter7: Eigenvalues and Eigenvectors & Diagonalization

1. Eigenvalues and Eigenvectors
2. Diagonalization