

All Chapters and Sample Problems refer to *Schaum's Outline of Linear Algebra*, 5th ed., Lipschutz et al.

**Chapter 1: Vectors in  $\mathbb{R}^n$  and  $\mathbb{C}^n$ , Spatial Vectors**

Theorems: 1.3, 1.4

Sample Problems: 1.3, 1.6, 1.8, 1.10, 1.11, 1.17, 1.19

**Chapter 2: Algebra of Matrices**

Theorems: 2.3, 2.4, 2.5

Sample Problems: 2.6, 2.15, 2.19, 2.20, 2.25

**Chapter 3: Systems of Linear Equations**

Theorems: 3.1, 3.4, 3.8, 3.13, 3.15, 3.17, 3.18

Sample Problems: 3.5, 3.11, 3.15, 3.22, 3.24, 3.32

**Chapter 4: Vector Spaces**

Theorems: 4.1, 4.2, 4.3, 4.5, 4.12, 4.14, 4.16, 4.17, 4.18, 4.20, 4.24

Sample Problems: 4.5, 4.6, 4.9, 4.11, 4.13, 4.19, 4.20, 4.24, 4.26, 4.29, 4.30, 4.41, 4.54, 4.63

**Chapter 5: Linear Mappings**

Theorems: 5.2, 5.3, 5.6, 5.9

Sample Problems: 5.10, 5.11, 5.14, 5.17, 5.25, 5.34, 5.42

**Chapter 6: Linear Mappings and Matrices**

Theorems: 6.1, 6.2, 6.3, 6.6, 6.8, 6.9

Sample Problems: 6.2, 6.3, 6.8, 6.13, 6.23, 6.27, 6.31

**Chapter 7: Inner Product Spaces, Orthogonality**

Theorems: 7.1, 7.5, 7.6, 7.7, 7.9, 7.15

Sample Problems: 7.3, 7.4, 7.5, 7.11, 7.13, 7.21, 7.23

**Chapter 8: Determinants**

Theorems: 8.1, 8.3, 8.4

Sample Problems: 8.2, 8.3, 8.13

**Chapter 9: Diagonalization, Eigenvalues and Eigenvectors**

Theorems: 9.2, 9.5, 9.8, 9.15

Sample Problems: 9.2, 9.3, 9.5, 9.10, 9.11, 9.14, 9.19, 9.27

**Chapter 10: Canonical Forms**

Theorems: 10.1, 10.2, 10.3, 10.6, 10.9, 10.10, 10.11

Sample Problems: 10.1, 10.4, 10.13, 10.17, 10.19, 10.20

**Chapter 11: Linear Functions and the Dual Space**

Theorems: 11.1, 11.5, 11.6, 11.7

Sample Problems: 11.1, 11.2, 11.9, 11.14