

Contents

Introduction	1
Block 1. Preparing the trip	5
Chapter 1. Geometry in the plane and space. Matrices of order 2 and 3	7
1. Geometry in the plane and in space. Objects and transformations.	8
2. Preparing the next topic	23
Chapter 2. Matrices and determinants in general	33
1. Matrices. Operations and properties	34
2. Elementary Transformations and Elementary Matrices	41
3. Determinants	53
Block 2. Gathering information on the road	65
Chapter 3. Vector spaces	67
1. Vector Spaces	68
2. Subspaces	91
3. Quotient vector space	106
Block 3. Enjoying the road	117
Chapter 4. Linear Maps	119
1. Linear maps	120
2. Isomorphism Theorems	140
Bibliography	149