

CONTENTS

A

| | |
|---|-----|
| Linear spaces | A1 |
| Linear independence | A7 |
| Gauss-Jordan elimination | A17 |
| Parametric equations of lines and planes in V_n | A25 |
| Parametric equations for k -planes in V_n | A32 |

B

| | |
|---|-----|
| Matrices | B1 |
| Systems of linear equations | B6 |
| Cartesian equations of k -planes in V_n | B18 |
| The inverse of a matrix | B25 |
| Determinants | B30 |
| Construction of the determinant when $n \leq 3$ | B33 |
| Cramer's rule and a formula for A^{-1} | B40 |
| Construction of the determinant function | B49 |
| The cross product in V_3 | B53 |

C

| | |
|---|-----|
| Supplementary exercises | C0 |
| Derivatives of vector functions | C1 |
| Differentiating inverse functions | C10 |
| Implicit differentiation | C14 |
| The second-derivative test for extrema | C22 |
| The extreme value and small-span theorems | C28 |
| Exercises on line integrals | C34 |

D

| | |
|---------------------------------------|-----|
| Notes on double integrals | D1 |
| Double integrals over general regions | D17 |
| Area | D21 |

E

| | |
|--|-----|
| Green's theorem in the plane | E1 |
| Conditions under which $P_i + Q_j$ is a gradient | E6 |
| The change of variables theorem | E21 |
| Isometries | E27 |

F

| | |
|-------------------------------------|----|
| Stokes' theorem | F1 |
| Exercises on the divergence theorem | F6 |
| Grad, curl, div and all that | F7 |