

Foundation Mathematics Units 3 & 4

Foundation Mathematics Units 3 & 4 — Contents

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Series contents

This series covers the complete VCE Foundation Mathematics Units 3 & 4 course as set out in the *VCE Mathematics Study Design (from 2023)*, across its four areas of study — Algebra, number and structure; Data analysis, probability and statistics; Financial and consumer mathematics; and Space and measurement — together with the working-mathematically and investigation processes of Outcomes 2 and 3. It comprises **thirteen content workbooks**, cumulative **topic tests**, and a **practice-examination booklet**. Each content workbook follows the same structure: concise theory, scaffolded and unscaffolded worked examples, graded practice questions, a compact answer key, and fully-worked solutions. All content is written for a scientific calculator, in line with the examination.

Working mathematically

Chapter 1 — Working mathematically and mathematical investigations (44 pp)

1C Taking a problem-solving approach · 1D Finding a context for an investigation · 1E Key issues in mathematical problem-solving · 1F Formulation: setting up the mathematics · 1G Stage 2: Explore · 1H Stage 3: Communicate · 1I A worked sample investigation

Topic 1 — Algebra, number and structure

Chapter 2 — Number and calculation (22 pp)

2C Rational and irrational numbers · 2D Order of operations, powers and roots · 2E Estimation and approximation · 2F Very large and very small numbers

Chapter 3 — Ratio, proportion and percentage (32 pp)

3C Ratios and proportions · 3D Direct proportion and variation · 3E Inverse variation · 3F Percentage calculations · 3G Percentage change · 3H Percentage error

Chapter 4 — Algebra, formulas and equations (38 pp)

4C Algebraic expressions · 4D Writing and solving equations · 4E Transposing formulas · 4F Graphing linear relations · 4G Simultaneous equations and break-even

Topic 1 Test A (multiple-choice) and Test B (short answer), with fully-worked solutions, are included at the end of this workbook.

Topic 2 — Data analysis, probability and statistics

Chapter 5 — Data collection (37 pp)

5C The statistical investigation cycle · 5D Types of data · 5E The purpose of data collection · 5F Data collection specifications · 5G Developing and producing surveys · 5H Errors and misrepresentation in data collection

Chapter 6 — Representing data (32 pp)

6C Organising data in tables · 6D Common graphs and charts · 6E Creating graphs with technology · 6F Contemporary data displays

Chapter 7 — Summary statistics and interpretation (47 pp)

7C Interpolation and extrapolation · 7D Measures of central tendency · 7E Measures of spread · 7F Distribution shape and outliers · 7G Describing and comparing data sets · 7H Misleading statistics and graphs

Chapter 8 — Probability and long-term data (22 pp)

8C Probability and chance · 8D Long-term data and relative frequency

Topic 2 Test A (multiple-choice) and Test B (short answer), with fully-worked solutions, are included at the end of this workbook.

Topic 3 — Financial and consumer mathematics

Chapter 9 — Money management: interest, loans and credit (25 pp)

9C Interest and repayments · 9D Comparing credit options · 9E Student loan schemes · 9F Wage growth and the cost of living

Chapter 10 — Consumer products, taxation and economic indicators (30 pp)

10C Comparing products and services · 10D Taxation and superannuation · 10E National and global money factors · 10F Financial risk and reward · 10G Interpreting economic, health and environmental data

Chapter 11 — Business income, expenditure and the BAS (28 pp)

11C Business revenue and planning · 11D Expenses and the BAS · 11E Financial statements

Topic 3 Test A (multiple-choice) and Test B (short answer), with fully-worked solutions, are included at the end of this workbook.

Topic 4 — Space and measurement

Chapter 12 — Shape, geometry and scale (35 pp)

12C Shapes and objects · 12D Transformations and symmetry · 12E Angle properties · 12F Maps and scale · 12G Reading and working with plans · 12H Nets and 3D from 2D

Chapter 13 — Measurement: length, area, volume and error (38 pp)

13C Measuring and measurement instruments · 13D Converting units · 13E Length and area · 13F Volume, capacity and density · 13G Measurement error, accuracy, precision and tolerance

Topic 4 Test A (multiple-choice) and Test B (short answer), with fully-worked solutions, are included at the end of this workbook.

Practice examinations

Chapter 14 — Practice examinations (61 pp)

Six full practice examinations, each mirroring the end-of-year examination (Section A: 20 multiple-choice questions; Section B: 12 short-answer questions; 80 marks; scientific calculator and bound reference), graded across two easier, two mid-level and two more demanding papers, with fully-worked solutions and a house Formula Sheet.

This series comprises $\approx$ 494 pages.