

VCE VM Numeracy Units 3 & 4

VCE VM Numeracy Units 3 & 4 — Contents

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Series contents

This series covers the complete VCE Vocational Major Numeracy Units 3 & 4 course as set out in the *VCE VM Numeracy Study Design (2023–2027)* — four areas of study per unit (Number; Shape; Quantity and measures; Relationships for Unit 3; Dimension and direction; Data; Uncertainty; Systematics for Unit 4), each unit closing with numeracy-in-context work, with the four-stage problem-solving cycle and the mathematical toolkit woven through every chapter. It comprises **eleven content workbooks** with cumulative **topic tests**, three **outcome-demonstration assessment booklets** (Units 3 and 4), a **GAT Section A numeracy practice booklet**, and a **formula sheet** collecting every formula used in the series. Each content workbook follows the same structure: concise theory in an accessible voice, scaffolded and unscaffolded worked examples, graded practice questions, a compact answer key, and fully-worked solutions. Every item is solvable with pen, paper and a basic scientific calculator; rounding precision is always stated explicitly; synthetic real-world tasks are labelled as such.

Methodology

Chapter 1 — The problem-solving cycle and mathematical toolkit (91 pp)

1A The four-stage problem-solving cycle · 1B Identify the mathematics: from real-world context to maths plan · 1C Estimate, check and reflect: is the answer reasonable? · 1D Communicate and report results · 1E The analogue toolkit: measuring and everyday tools · 1F The digital toolkit: calculators, spreadsheets, apps and online safety · 1G Numeracy words: familiar, unfamiliar, routine, non-routine, specialised

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Unit 3 — Areas of Study 1–4 and numeracy in context

Chapter 2 — Number (86 pp)

2A Place value: reading and writing large and small numbers · 2B Multiplication facts, factors and multiples · 2C Rounding whole numbers and decimals · 2D Positive and negative numbers · 2E Powers and square roots · 2F Fractions, decimals and percentages: equivalence and operations · 2G Simple ratio and proportion

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Chapter 3 — Shape (72 pp)

3A Naming and classifying 2D shapes and 3D objects · 3B Angles in shapes · 3C Reflectional and rotational symmetry · 3D Congruence, similarity and scaling · 3E Compound shapes, patterns and shape technologies

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Chapter 4 — Quantity and measures (82 pp)

4A Metric and non-metric units; conversion · 4B Perimeter and area (incl. circles and compound shapes) · 4C Volume and capacity · 4D Time: analogue and digital, 24-hour, time zones, durations · 4E Temperature · 4F Estimation, measurement tools, accuracy and tolerance

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Chapter 5 — Relationships (66 pp)

5A Variables and formulas in real life · 5B Rates of change · 5C Ratio and proportion in context · 5D Tables, conversion charts and graphs · 5E Conventions for writing algebra

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Chapter 6 — Unit 3 numeracy in context (95 pp)

6A Personal numeracy · 6B Civic numeracy · 6C Financial numeracy · 6D Health numeracy · 6E Vocational numeracy · 6F Recreational numeracy

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Unit 4 — Areas of Study 5–8 and numeracy in context

Chapter 7 — Dimension and direction (70 pp)

7A Location, landmarks and space · 7B Maps, compass directions and bearings · 7C Giving and following directions · 7D Angles in degrees

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Chapter 8 — Data (82 pp)

8A Collecting and categorising data · 8B Tables and graphs: axes and scales · 8C Measures of centre: mean, median and mode · 8D Spread, range and outliers · 8E Interpreting data and drawing conclusions

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Chapter 9 — Uncertainty (62 pp)

9A Chance language and probability values · 9B Sample spaces and simple probability · 9C Comparing events and deciding from data · 9D Risk and likelihood

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Chapter 10 — Systematics (83 pp)

10A Inputs and outputs of technology · 10B Spreadsheets and data tools · 10C Planning and scheduling with technology · 10D Maps, planners and online calculators · 10E Setting and adjusting parameters

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Chapter 11 — Unit 4 numeracy in context (113 pp)

11A Personal numeracy · 11B Civic numeracy · 11C Financial numeracy · 11D Health numeracy · 11E Vocational numeracy · 11F Recreational numeracy

Test A (multiple choice) and Test B (written response), with answers and fully-worked solutions, are included at the end of this workbook.

Assessment, practice and reference

Chapter 12 — Unit 3 outcome demonstration assessment (39 pp)

Three outcome-demonstration assessments for Unit 3 (one per outcome: a context paper, a four-stage problem-solving task paper and a toolkit paper), each with answers and fully-worked solutions. These complement, not replace, school-designed SACs.

Chapter 13 — Unit 4 outcome demonstration assessment (36 pp)

Three outcome-demonstration assessments for Unit 4 (one per outcome), each with answers and fully-worked solutions. These complement, not replace, school-designed SACs.

Chapter 14 — GAT Section A numeracy practice (51 pp)

Two GAT Section A numeracy practice sets with answers and fully-worked solutions — the only external-style practice VCE VM students need (VM students sit GAT Section A only).

Formula sheet

VM Numeracy formula sheet (21 pp)

Every formula used across Units 3 & 4, each with its symbol definitions — compiled from the series itself.