

Table of Contents

Overview of *Principles of Mathematics 10* v

| | |
|---|-------|
| Structure of the Teacher's Resource | vii |
| Program Philosophy | x |
| Approaches to Teaching Mathematics | x |
| Instructional Practice | xi |
| Literacy | xii |
| Problem Solving | xiii |
| Mathematical Processes | xiv |
| Technology | xvi |
| Assessment | xvii |
| Intervention | xx |
| Modifications, Individual Education Plans (IEP) and Accommodations | xxi |
| Curriculum Correlation | xxvii |

Chapter 1 Linear Systems 1

| | |
|--|----|
| Chapter 1 Planning Chart | 2 |
| Chapter 1 Blackline Masters Checklist | 3 |
| Get Ready | 5 |
| 1.1 Connect English With Mathematics and Graphing Lines | 6 |
| 1.2 The Method of Substitution | 9 |
| 1.3 Equivalent Linear Relations and Equivalent Linear Systems | 12 |
| 1.4 The Method of Elimination | 17 |
| 1.5 Solve Problems Using Linear Systems | 20 |
| Chapter 1 Review | 23 |
| Chapter 1 Problem Wrap-Up | 24 |
| Chapter 1 Practice Test | 28 |

Chapter 2 Analytic Geometry 31

| | |
|---|----|
| Chapter 2 Planning Chart | 32 |
| Chapter 2 Blackline Masters Checklist | 34 |
| Get Ready | 36 |
| 2.1 Midpoint of a Line Segment | 37 |
| 2.2 Length of a Line Segment | 42 |
| 2.3 Apply Slope, Midpoint, and Length Formulas | 46 |
| 2.4 Equation for a Circle | 50 |
| Chapter 2 Review | 53 |
| Chapter 2 Problem Wrap-Up | 54 |
| Chapter 2 Practice Test | 57 |

Chapter 3 Geometric Properties 59

| | |
|--|----|
| Chapter 3 Planning Chart | 60 |
| Chapter 3 Blackline Masters Checklist | 62 |
| Get Ready | 65 |
| 3.1 Investigate Properties of Triangles | 66 |
| 3.2 Verify Properties of Triangles | 70 |
| 3.3 Investigate Properties of Quadrilaterals | 74 |
| 3.4 Verify Properties of Quadrilaterals | 78 |
| 3.5 Properties of Circles | 81 |
| Chapter 3 Review | 84 |
| Chapter 3 Problem Wrap-Up | 85 |
| Chapter 3 Practice Test | 88 |
| Chapters 1 to 3 Review | 90 |
| Tasks | 91 |

Chapter 4 Quadratic Relations 101

| | |
|--|-----|
| Chapter 3 Planning Chart | 102 |
| Chapter 3 Blackline Masters Checklist | 103 |
| Get Ready | 105 |
| 4.1 Investigate Non-Linear Relations | 106 |
| 4.2 Quadratic Relations | 109 |
| 4.3 Investigate Transformations of Quadratics | 113 |
| 4.4 Graph $y = a(x - h)^2 + k$ | 117 |
| 4.5 Quadratic Relations of the Form $y = a(x - r)(x - s)$ | 122 |
| 4.6 Negative and Zero Exponents | 125 |
| Chapter 4 Review | 130 |
| Chapter 4 Problem Wrap-Up | 131 |
| Chapter 4 Practice Test | 134 |

Chapter 5 Quadratic Expressions 137

| | |
|--|-----|
| Chapter 5 Planning Chart | 138 |
| Chapter 5 Blackline Masters Checklist | 139 |
| Get Ready | 141 |
| 5.1 Multiply Polynomials | 142 |
| 5.2 Special Products | 146 |
| 5.3 Common Factors | 151 |
| 5.4 Factor Quadratic Expressions of the Form $x^2 + bx + c$ | 155 |
| 5.5 Factor Quadratic Expressions of the Form $ax^2 + bx + c$ | 158 |
| 5.6 Factor a Perfect Square Trinomial and a Difference of Squares | 161 |
| Chapter 5 Review | 164 |
| Chapter 5 Problem Wrap-Up | 165 |
| Chapter 5 Practice Test | 167 |

| | |
|--|------------|
| Chapter 6 Quadratic Equations | 169 |
| Chapter 6 Planning Chart | 171 |
| Chapter 6 Blackline Masters Checklist | 172 |
| Get Ready | 174 |
| 6.1 Maxima and Minima | 175 |
| 6.2 Solve Quadratic Equations | 179 |
| 6.3 Graph Quadratics Using the x-Intercepts | 183 |
| 6.4 The Quadratic Formula | 187 |
| 6.5 Solve Problems Using Quadratic Equations | 192 |
| Chapter 6 Review | 195 |
| Chapter 6 Problem Wrap-Up | 196 |
| Chapter 6 Practice Test | 198 |
| Chapters 4 to 6 Review | 200 |
| Tasks | 201 |
| | |
| Chapter 7 Trigonometry of Right Triangles | 211 |
| Chapter 7 Planning Chart | 212 |
| Chapter 7 Blackline Masters Checklist | 214 |
| Get Ready | 216 |
| 7.1 Investigate Properties of Similar Triangles | 217 |
| Use Technology Create Designs With Similar and Congruent Figures Using Dynamic Geometry Software | 221 |
| 7.2 Use Similar Triangles to Solve Problems | 222 |
| 7.3 The Tangent Ratio | 226 |
| 7.4 The Sine and Cosine Ratios | 231 |
| 7.5 Solve Problems Involving Right Triangles | 235 |
| Chapter 7 Review | 238 |
| Chapter 7 Problem Wrap-Up | 239 |
| Chapter 7 Practice Test | 241 |

| | |
|--|------------|
| Chapter 8 Trigonometry of Acute Triangles | 243 |
| Chapter 8 Planning Chart | 244 |
| Chapter 8 Blackline Masters Checklist | 246 |
| Get Ready | 248 |
| 8.1 The Sine Law | 249 |
| 8.2 The Cosine Law | 253 |
| 8.3 Find Angles Using the Cosine Law | 258 |
| Use Technology Program a Graphing Calculator | 262 |
| Use Technology Program a TI-89 Calculator | 263 |
| 8.4 Solve Problems Using Trigonometry | 264 |
| Chapter 8 Review | 267 |
| Chapter 8 Problem Wrap-Up | 268 |
| Chapter 8 Practice Test | 270 |
| Chapters 7 and 8 Review | 272 |
| Tasks | 273 |
| Course Review | 280 |

Blackline Masters

(Available on *Principles of Mathematics 10: Teacher's Resource CD-ROM*)

The CD-ROM includes chapter-specific worksheets, assessment tools, and technology masters, along with generic masters and generic assessment masters. The Blackline Masters are provided in WORD and PDF format.

Blackline Masters are provided for the skills reviewed on each chapter's Get Ready pages, and for each numbered section of the text. A Practice Test and a Chapter Test are provided for each chapter. Answers are included for all these extra questions.

The CD-ROM also includes rubrics for the chapter problem wrap-ups and chapter tasks, chapter test assessment masters, and chapter mark summaries. These will help you to keep track of student achievement by chapter, strand, and category.