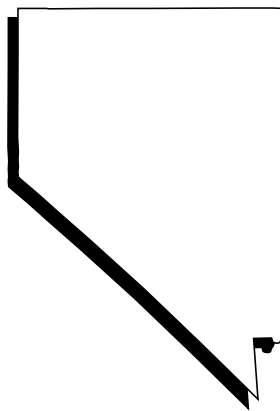


McDougal Littell

Algebra 1

Concepts and Skills

correlated to the



Nevada Mathematics
Content Standards

Grade 12

 **McDougal Littell**

Introduction

to

Algebra 1: Concepts and Skills © 2001 Grades 8–12

Algebra 1: Concepts and Skills presents a broad range of topics with a focus on the development of algebraic concepts and the acquisition of skills. The text uses multiple representations—algebraic, verbal, and graphic explanations—in every lesson. ***Algebra 1: Concepts and Skills*** has a clear, consistent, readable lesson format with concise goals, clear explanations, highlighted vocabulary, visuals and diagrams, summary boxes, and a variety of mathematical examples. Important concepts are made understandable to all students through instructional diagrams, graphics and color coding, activities, and numerous examples throughout the textbook. The following are some of the key features.

- ***Concepts and Skills*** teaches the development of problem solving through examples and a variety of practice exercises.
- Students become more adept at solving problems through the skills review before each chapter as well as homework exercises correlated to the examples.
- There are ample, well-balanced practice sets with exercises keyed to examples in the lesson.
- Student Help notes throughout the book assist students in locating help with particular problems; some, for example, list previous pages that have useful information or reference the McDougal Littell Web site.
- Study Guides at the beginning of each chapter give a preview of the upcoming topics along with a quick skills review. The Guides also include a study strategy for the chapter.
- Standardized test preparation is found in every lesson as well as at the end of every chapter.
- Mixed Reviews in every lesson help students to maintain skills.
- The Skills Review Handbook at the back of the student book provides explanations, examples and practice for skills that are prerequisite to the course.

Teachers are supported by a wealth of ancillary materials. A complete listing of all program components is provided on the following page.

Algebra 1: Concepts and Skills © 2001

Components

Teacher's Edition

Teacher's Resource Package

Chapter Resource Books 1–12

Worked-out Solution Key

Algebra Tile Investigations

Basic Skills Workbook: Diagnosis
and Remediation Teacher's
Edition

Standardized Test Practice Workbook

Practice Workbook with Examples
Teacher's Edition

Warm-up Transparencies and Daily
Homework Quiz

Online Lesson Planner Guide

Other Ancillaries

Resources in Spanish

Multi-Language Glossary

Student Algebra Tile Kit

Overhead Tile Kit

Transparencies:

Extra Examples with Standardized
Test Practice

Answer Transparencies for Checking
Homework

Starting Points: Alternative Lesson
Opener Package

Workbooks:

Basic Skills Workbook: Diagnosis and
Remediation Pupil's Edition

Practice Workbook with Examples

Standardized Test Practice Workbook

Preparation for Middle School Math
Grade 8

Preparation for Middle School Math
Teacher's Edition

Technology:

Time-saving Test and Practice Generator
CD-ROM

Instant Replay: Video Review Games
with Video Resource Book

Electronic Lesson Presentations
CD-ROM

Electronic Teacher Tools CD-ROM

Personal Student Tutor CD-ROM

Algebra 1: Concepts and Skills

correlated to the

Nevada Mathematics Content Standards Grade 12

Numbers, Number Sense, and Computation

Content Standard 1.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will accurately calculate, use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions.

By the end of Grade 12, students know and are able to do everything required in the previous grades and:

1.12.1 Calculate and estimate sums, differences, product, quotients, powers, and roots using mental math, formulas, and algorithms.

PE: xvii, xxi, 25, 27-28, 32, 70, 74, 82-83, 98, 102-104, 118, 155-156, 441-448, 500-504, 759-760, 774, 776

TE: T42, T45, 25, 27-28, 32, 62E, 62F, 70, 74, 83, 98, 102-104, 117-118, 128C, 155-156, 441-448, 496D, 496E, 500-504, 572, 666, 759-760, 774, 776

TRP: BSWB 1-25, 89-108; PWWE 12, 31-38, 46-48; C3RB 19; C8RB 5; C1RB 5, 12; C2RB 5, 6, 38-42, 51-55, 63-67, 69, 75, 99, 101-104, 107

1.12.2 Apply the laws of exponents to perform operations on expressions with integral exponents and scientific notation.

PE: 9, 10, 12-13, 441-454, 461-474, 489-490,

TE: 9-13, 16, 184, 438C, 438D, 441-454, 457, 461-474, 483, 489-490, 500, 586, 688E, 711

TRP: PWWE 4,5, 160-180; C1RB 8, 25-29, 32; C8RB 7, 8, 12-16, 18, 19, 23-28, 30-31, 35-40, 42, 43, 48-54, 56, 57, 61-66, 68-70, 76-82, 84, 85, 89-96, 98-101

1.12.3 Apply properties and theories of the real number system to everyday situations.

PE: 62-118

TE: 1E, 62E, 62-118, 128D, 200C, 320C, 320E, 324, 331, 496C, 619, 659, 660

TRP: ALG TILES 1-5; PWWE 7,8,40-42, 214-216; C1RB 36, 41; C2RB 6, 45, 75-79, 82; C3RB 6; C10RB 51-54

1.12.5 Perform simple operations on matrices.

Chapter 7 provides teachers with the opportunity to introduce matrices by using them as another method to solve systems of equations. Teachers would have to also teach basic matrix operations.

Patterns, Functions, and Algebra

Content Standard 2.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations.

By the end of Grade 12, students know and are able to do everything required in the previous grades and:

2.12.2 Represent, analyze, and solve problem situations using discrete structures including graphs and matrices, with and without technology.

PE: 42-47, 49-54, 58-60, 127, 777-779

TE: 42-47, 49-54, 58-60, 127, 128F, 200C, 200E, 212, 270, 320C, 326, 340, 356, 386D, 391, 403, 438F, 673, 777-779

TRP: PWWE 9, 19, 62, 63; C1RB 37, 42, 45, 68, 80; C2RB 57; C3RB 62, 66; C4RB 5,6

2.12.3 Create and use different forms of a variety of equations, proportions, and/or formulas ($I = PRT$ or $R = I/PT$), solving for the needed variable as necessary in given situations.

PE: 4-7, 38, 132-149, 151-162, 171-176, 192-193

TE: 4-7, 38, 99, 132-149, 151-162, 171-176, 192-193, 702

TRP: PWWE 67-69, 100-102; C1RB 20, 68, 104; C3RB 7, 43, 87-91, 93, 94; C5RB 13-16; C9RB 30, 41

2.12.4 Add, subtract, multiply, and factor (1st and 2nd degree) polynomials, describing each step in the process and the connection between the algebraic process and the arithmetic process; use simple quadratic equations with integer roots to solve practical and mathematical problems.

PE: 567-615, 623-628

TE: 496E, 564E, 567-615, 623-628, 688E

TRP: ATI 36-51; PWWE 43-45, 94, 205-213, 217-228; C2RB 88-91; C3RB 6; C7RB 5; C9RB 69, 70; C10RB 5, 7, 8, 144-17, 19, 20, 24-30, 32, 33, 37-41, 43, 45, 62-66, 69, 64-78, 80, 81, 86, 90-93, 100-104, 107, 108

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2.12.5 Model practical problems from everyday situations with a variety of models that includes matrices, translating among tabular, symbolic and graphical representations of functions, with and without technology.

PE: 4, 17, 20, 28, 36-40, 46, 65-69, 75, 88, 95, 109, 127, 159, 205, 211, 244, 257, 289, 343, 361, 371, 389, 393, 457, 478, 528, 562-563, 666

TE: 4, 17, 20, 28, 36-40, 46, 62D, 65-69, 75, 80, 88, 95, 109, 127, 159, 161, 148, 200C, 205, 211, 244, 257, 289, 300, 303, 343, 361, 371, 389, 393, 438E-438F, 457, 477-478, 483, 484, 528, 562-563, 564F, 605, 666, 673

TRP: PWWE 16-18, 97-99, 103-114; C1RB 36,45,51,81; C2RB 81,93; C4RB 20, 21, 31, 32, 42, 48, 54, 55, 66, 67, 95, 96, 100-104, 106; C5RB 7, 23-27, 29, 30, 35-39, 41, 42, 47-50, 52, 53, 58-62, 64-66

2.12.6 Determine the domain and range of linear relations given a graph or a set of ordered pairs; explain their importance in problem solving situations.

PE: 49-53, 252, 255-257

TE: 1F, 49-53, 115, 220, 252, 255-257, 287, 296

TRP: C2RB 99; C4RB 43, 107

2.12.7 Solve systems of two linear equations both algebraically and graphically; use graphing calculators as a primary tool in solving these problems and to verify solutions found by other methods.

PE: 389-422

TE: 128F, 159, 266D, 266E, 386D, 386E, 389-422

TRP: PWWE 142-159; C5RB 18,.; C7RB 8, 12, 14-17, 19, 20, 24-28, 30, 31, 35-39, 41, 42,47-51, 53-55, 60-64, 66, 67, 71-77, 79, 80, 82

Measurement

Content Standard 3.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements.

By the end of Grade 12, students know and are able to do everything required in the previous grades and:

3.12.1 Convert one unit of measure to another between customary and metric systems and between monetary systems.

PE: 7, 129, 171, 174, 802

TE: 7, 1C, 128C, 129, 171, 174, 289, 802

TRP: C1RB 21, 31; C2RB 69; C3RB 106

3.12.2 Select and use measurement tools, techniques, and formulas to calculate and compare rates, cost, distances, interest, temperatures, and weight/mass.

PE: 7, 8, 25, 38, 46, 145, 177-181, 298-304, 477, 479, 480, 673

TE: 7, 8, 21, 25, 38, 46, 128C, 128D, 145, 177-181, 298-304, 363, 477, 479, 480, 673

TRP: PWWE 70-72; C1RB 15, 16, 21, 31; C3RB 8, 98-102, 104-105, 116

3.12.3 Distinguish and differentiate among the structures, language and uses of systems of measures (e.g., linear, square units, cubic units); justify and communicate the differences between accuracy, precision, error, and tolerance in measurement; describe how each of these can affect solutions found in problem situations.

PE: xix, xxii, 5, 7, 178-179, 772-773

TE: T43, T46, 5, 7, 178-179, 772-773

3.12.4 Use and interpret consumer data (e.g., amortization tables, tax tables, and compound interest charts) to make informed financial decisions related to practical applications such as budget.

PE: 477, 479, 480 (The problems given on these pages provide an opportunity to create compound interest charts.)

TE: 62D, 438E-438F

TRP: C1RB 21; C11RB 23, 24, 27-30

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3.12.5 Use relationships (e.g., proportions) and formulas (indirect measurement) to determine the measurement of unknown dimensions, angles, areas, and volumes to solve problems.

PE: 635, 637, 641, 643, 645, 650

TE: 62C, 128E, 128F, 635, 637, 641, 643, 645, 650, 688F, 731, 732

TRP: BSWB 77-86; PWWE 6; C1RB 6, 26, 27, 31

Spatial Relationships and Geometry

Content Standard 4.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will identify, represent, explain, verify, and apply spatial relationships and geometric properties.

By the end of Grade 12, students know and are able to do everything required in the previous grades and:

4.12.1 Identify and use the properties of polygons (including interior and exterior angles) and elements of circles (e.g., angles, arc, chord, secants and tangents) to solve practical problems.

PE: 5, 7, 720, 798, see also 47, 70, 702, 707

TE: 5, 7, 438C, 720, 798

TRP: BSWB 72-74

4.12.5 Use coordinate geometry to graph linear equations, determine slopes of lines, identify parallel and perpendicular lines and find possible solutions to sets of equations; use algebraic techniques to solve problems determined by geometric relationships.

PE: 203-234, 243-249, 268-290, 305-317, 389-408, 520-532, 730-740

TE: 200E-200F, 203-234, 243-249, 266D, 268-290, 305-317, 389-408, 419, 520-532, 688D, 730-740

TRP: PWWE 77-90, 94-96, 115-117; C4RB 13, 15-18, 20-21, 25-29, 36-40, 49-52, 60-64, 68, 85-93; C5RB 5, 6, 8, 12, 71-77, 79, 80; C8RB 6

4.12.6 Use complementary and supplementary angles, congruent angles, vertical angles, angles formed when parallel lines are cut by transversal, and angles in polygons to solve practical problems.

PE: Opportunity to introduce transversals exists on page 245.

TE: 245

4.12.7 Apply the Pythagorean Theorem, its converse, properties of special right triangles, and right triangle trigonometry to solve practical problems.

PE: 722-728

TE: 136, 688D, 888F, 722-728

TRP: PWWE 265-267; C9RB 20, 24; C10RB 44; C12RB 70-76, 79

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4.12.8 Use tools, technology, and models to sketch, draw, and construct geometric figures in order to solve problems and to demonstrate the properties of geometric figures.

PE: 250-251, 374, 395, 461, 532, 645

TE: 111, 250-251, 374, 395, 461, 522, 523, 532, 564F, 583, 645, 688E

TRP: PWWE 91-93, 274-276; C4RB 72-76, 78, 79; C12RB 106-110, 112, 113

4.12.9 Construct, justify and defend mathematical conclusions using logical, sequential, deductive reasoning supported by established mathematical principles.

PE: 119-120, 611, 740-745

TE: 119-120, 200D, 200E, 320F, 329, 496C, 496D, 564D, 611, 688F, 740-745

Data Analysis

Content Standard 5.0: To solve problems, communicate, reason, and make connections within and beyond the fields of mathematics, students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections.

By the end of Grade 12, students know and are able to do everything required in the previous grades and:

5.12.1 Use calculators and computers to create and manipulate tables, graphs, and matrices to communicate statistical information; use the shape of graphs of normal distributions to compare and analyze information.

PE: 42-47, 58, 777-778

TE: 42-47, 58, 386C, 777-778

5.12.2 Design, conduct, analyze, and communicate the results of multi-stage probability experiments.

The following citations are readiness references/or opportunities to discuss probability problems.

PE: 584, 586

TE: 584, 586

5.12.3 Identify a probability situation as a permutation or a combination and find the possible outcomes using a variety of methods.

PE: 584, 586

TE: 584, 586

5.12.4 Select and use the measures of central tendency such as mean, median, mode and variability including range, distribution and possible outliers that are appropriate for given situations.

PE: 780

TE: 780

TRP: BSWB 46-50; C2RB 106

5.12.5 Analyze the validity of statistical conclusions noting various sources of bias, misuse, and abuse of data caused by a wide variety of factors including choices of scale, probability versus odds, inappropriate uses of measures of central tendency, inaccurate curve fitting and inappropriate uses of controls or sample groups.

PE: 43, 224

TE: 43, 224

5.12.6 Design, construct, analyze, and select an appropriate type of graph to represent data to communicate the results of statistical experiments (e.g., write a survey question and analyze and communicate the findings).

PE: 46, 127, 384-385, 777-779

TE: 46, 127, 384-385, 386C, 777-779

TRP: BSWB 51-61; C1RB 85-89, 91-93; C2RB 21, 58