

COMMON CORE ALGEBRA I

VERSION 2.0

LESSONS BY KIRK WEILER
HOMEWORK SETS BY KIRK WEILER AND GARRETT MATULA

UNIT #1 – THE BUILDING BLOCKS OF ALGEBRA – 11 LESSONS 9

- Lesson #1 – Rates, Patterns and Problem Solving
- Lesson #2 – Variables and Expressions
- Lesson #3 – The Commutative and Associative Properties
- Lesson #4 – The Distributive Property
- Lesson #5 – Equivalent Expressions
- Lesson #6 – Seeing Structure in Expressions
- Lesson #7 – Exponents as Repeated Multiplication
- Lesson #8 – More Complex Equivalency
- Lesson #9 – More Structure Work
- Lesson #10 – Translating English to Algebra
- Lesson #11 – Algebraic Puzzles
- Unit Review

UNIT #2 – LINEAR EXPRESSIONS, EQUATIONS, AND INEQUALITIES – 13 LESSONS 61

- Lesson #1 – Equations and Their Solutions
- Lesson #2 – Seeing Structure to Solve Equations
- Lesson #3 – A Linear Equation Solving Review
- Lesson #4 – Justifying Steps in Solving an Equation
- Lesson #5 – Linear Word Problems
- Lesson #6 – More Linear Equations and Consecutive Integer Games
- Lesson #7 – Solving Linear Equations with Unspecified Constants
- Lesson #8 – Inequalities
- Lesson #9 – Solving Linear Inequalities
- Lesson #10 – Compound Inequalities
- Lesson #11 – More Work with Compound Inequalities
- Lesson #12 – Interval Notation
- Lesson #13 – Modeling with Inequalities
- Unit Review



UNIT #3 – FUNCTIONS – 7 LESSONS 121

- Lesson #1 – Introduction to Functions
- Lesson #2 – Function Notation
- Lesson #3 – Graphs of Functions
- Lesson #4 – Graphical Features
- Lesson #5 – Exploring Functions Using the Graphing Calculator
- Lesson #6 – Average Rate of Change
- Lesson #7 – The Domain and Range of a Function
- Unit Review

UNIT #4 – LINEAR FUNCTIONS AND ARITHMETIC SEQUENCES – 13 LESSONS 157

- Lesson #1 – Proportional Relationships
- Lesson #2 – Unit Conversions
- Lesson #3 – Nonproportional Linear Relationships
- Lesson #4 – More Work Graphing Linear Functions (Lines)
- Lesson #5 – Writing Equations in Slope-Intercept Form
- Lesson #6 – Modeling with Linear Functions
- Lesson #7 – More Linear Modeling
- Lesson #8 – Strange Lines – Vertical and Horizontal
- Lesson #9 – Absolute Value and Step Functions
- Lesson #10 – The Truth About Graphs
- Lesson #11 – Graphs of Linear Inequalities
- Lesson #12 – Introduction to Sequences
- Lesson #13 – Arithmetic Sequences
- Unit Review

UNIT #5 – SYSTEMS OF LINEAR EQUATIONS AND INEQUALITIES – 8 LESSONS 217

- Lesson #1 – Solutions to Systems and Solving by Graphing
- Lesson #2 – Solving Systems by Substitution
- Lesson #3 – Properties of Systems and Their Solutions
- Lesson #4 – The Elimination Method
- Lesson #5 – Modeling with Systems of Equations
- Lesson #6 – Solving Equations Graphically
- Lesson #7 – Solving Systems of Inequalities
- Lesson #8 – Modeling with Systems of Inequalities
- Unit Review



UNIT #6 – EXPONENTS, EXPONENTS, AND MORE EXPONENTS – 9 LESSONS 257

- Lesson #1 – Simplifying Expressions Involving Exponents
- Lesson #2 – Zero and Negative Exponents
- Lesson #3 – Exponential Growth and Decay
- Lesson #4 – Introduction to Exponential Functions
- Lesson #5 – Percent Review
- Lesson #6 – Percent Increase and Decrease
- Lesson #7 – Exponential Models Based on Percent Growth
- Lesson #8 – Linear Versus Exponential
- Lesson #9 – Geometric Sequences
- Unit Review

UNIT #7 – POLYNOMIALS – 6 LESSONS 301

- Lesson #1 – Introduction to Polynomials
- Lesson #2 – Multiplying Polynomials
- Lesson #3 – Factoring Polynomials
- Lesson #4 – Factoring Based on Conjugate Pairs
- Lesson #5 – Factoring Trinomials
- Lesson #6 – More Work Factoring Trinomials
- Unit Review

UNIT #8 – QUADRATIC FUNCTIONS AND THEIR ALGEBRA – 7 LESSONS 333

- Lesson #1 – Introduction to Quadratic Functions
- Lesson #2 – More Work with Parabolas
- Lesson #3 – The Shifted Form of a Parabola
- Lesson #4 – Completing the Square
- Lesson #5 – Stretching Parabolas and More Completing the Square
- Lesson #6 – The Zeroes of a Quadratic
- Lesson #7 – More Zero Product Law Work
- Lesson #8 – Quadratic Word Problems
- Unit Review



UNIT #9 – ROOTS AND IRRATIONAL NUMBERS – 8 LESSONS 375

- Lesson #1 – Square Roots
- Lesson #2 – Irrational Numbers
- Lesson #3 – Square Root Functions and Shifting
- Lesson #4 – Solving Quadratics Using Inverse Operations
- Lesson #5 – Finding Zeroes by Completing the Square
- Lesson #6 – The Quadratic Formula
- Lesson #7 – Final Work with Quadratic Equations
- Lesson #8 – Cube Roots
- Unit Review

UNIT #10 – STATISTICS – 10 LESSONS 415

- Lesson #1 – Graphical Displays of Data
- Lesson #2 – Quartiles and Box Plots
- Lesson #3 – Measures of Central Tendency
- Lesson #4 – Variation within a Data Set
- Lesson #5 – Two Way Frequency Tables
- Lesson #6 – Bivariate Data Analysis
- Lesson #7 – Linear Regression on the Calculator
- Lesson #8 – Other Types of Regression
- Lesson #9 – Quantifying Predictability
- Lesson #10 – Residuals
- Unit Review

UNIT #11 – A FINAL LOOK AT FUNCTIONS AND MODELING – 8 LESSONS 465

- Lesson #1 – Function Transformations
- Lesson #2 – Horizontal Stretching of Functions
- Lesson #3 – Discrete Functions
- Lesson #4 – Another Look at Linear and Exponential Models
- Lesson #5 – Step Functions Revisited
- Lesson #6 – Piecewise Linear Functions
- Lesson #7 – Quadratic Models
- Lesson #8 – Limits on the Accuracy of Our Models
- Unit Review

TOTAL LESSON COUNT = 101

