# COMMON CORE ALGEBRA II TABLE OF CONTENTS

## BY KIRK WEILER

#### ANNOTATED WITH PARCE EOY COMMON CORE STANDARDS

#### UNIT #1 – ALGEBRAIC ESSENTIALS REVIEW

- Lesson #1 Variables, Terms and Expressions
   In review/preparation for other standards.
- Lesson #2 Solving Linear Equations
   A-CED.1
- Lesson #3 Common Algebraic Expressions
   In review/preparation for other standards.
- Lesson #4 Basic Exponent Manipulation N-RN.2
- Lesson #5 Multiplying Polynomials
   A-SSE.2
- Lesson #6 Using Tables on Your Calculator

#### UNIT #2 – FUNCTIONS AS THE CORNERSTONES OF ALGEBRA

- Lesson #1 Introduction to Functions
   In review/preparation for other standards.
- Lesson #2 Function Notation
   In review/preparation for other standards.
- Lesson #3 Function Composition
   Not addressed in standards
- Lesson #4 The Domain and Range of a Function In review/preparation for other standards.





## Unit #2 – Functions as the Cornerstones of Algebra (continued)

• Lesson #5 – One to One Functions

In preparation for F-BF.4.

• Lesson #6 – Inverse Functions

**F-BF.4** 

• Lesson #7 – Key Features of Functions

F-IF.9, F-IF.4

### Unit #3 – Linear Functions, Equations, and Their Algebra

• Lesson #1 – Direct Variation

In review/preparation for other standards.

• Lesson #2 – Average Rate of Change

**F-IF.6** 

• Lesson #3 – Forms of a Line

F-LE.2

• Lesson #4 – Linear Modeling

F-LE.5

• Lesson #5 – Inverses of Linear Functions

F-BF.4

• Lesson #6 – Piecewise Linear Functions

In review/preparation for other standards.

• Lesson #7 - Systems of Linear Equations (Primarily 3 by 3)

A-REI.6

#### UNIT #4 – EXPONENTIAL AND LOGARITHMIC FUNCTIONS

• Lesson #1 – Integer Exponents

N-RN.2

• Lesson #2 – Rational Exponents

N-RN.1, N-RN.2

• Lesson #3 – Exponential Function Basics

F-LE.5





## Unit #4 – Exponential and Logarithmic Functions (continued)

• Lesson #4 – Finding Equations of Exponentials

F-LE.2

• Lesson #5 – The Method of Common Bases

A-CED.2

• Lesson #6 – Exponential Modeling with Percent Growth and Decay

A-CED.1, A-SSE.3

• Lesson #7 – Mindful Percent Manipulations

A-SSE.3

• Lesson #8 – Introduction to Logarithms

In review/preparation for other standards.

• Lesson #9 – Graphs of Logarithms

F-IF.4, F-IF.7(e)

• Lesson #10 – Logarithm Laws

Not addressed in standards

• Lesson #11 – Solving Exponential Equations Using Logarithms

F-LE.4

• Lesson #12 – The Number e and the Natural Logarithm

F-LE.4

• Lesson #13 – Compound Interest

F-IF.8, F-BF.1(a), A-SSE.3

• Lesson #14 – Newton's Law of Cooling

**F-BF.1(b)** 

## UNIT #5 – SEQUENCES AND SERIES

• Lesson #1 – Sequences

F-IF.3, F-BF.2

• Lesson #2 – Arithmetic and Geometric Sequences

**F-BF.2, F-LE.2** 

• Lesson #3 – Summation Notation

A-SSE.4





## UNIT #5 – SEQUENCES AND SERIES (CONTINUED)

• Lesson #4 – Arithmetic Series

Not addressed in standards

• Lesson #5 – Geometric Series

A-SSE.4

• Lesson #6 – Mortgage Payments

A-SSE.4

## UNIT #6 -QUADRATIC FUNCTIONS AND THEIR ALGEBRA

• Lesson #1 – Quadratic Function Review

F-IF.4

• Lesson #2 – Factoring

A-SSE.2

• Lesson #3 – Factoring Trinomials

A-SSE.2

• Lesson #4 – Complete Factoring

A-SSE.2

• Lesson #5 – Factoring by Grouping

A-SSE.2

• Lesson #6 – The Zero Product Law

A-APR.3, A-REI.4

• Lesson #7 – Quadratic Inequalities in One Variable

A-CED.1

• Lesson #8 – Completing the Square and Shifting Parabolas

**F-BF.3** 

• Lesson #9 – Modeling with Quadratic Functions

A-CED.1

• Lesson #10 – Equations of Circles

A-REI.7

• Lesson #11 – The Locus Definition of a Parabola

G-GPE.2





## **UNIT #7 – TRANSFORMATIONS OF FUNCTIONS**

• Lesson #1 – Shifting Functions

**F-BF.3** 

• Lesson #2 – Reflecting Parabolas

F-BF.3

• Lesson #3 – Vertically Stretching of Functions

**F-BF.3** 

• Lesson #4 – Horizontal Stretching of Functions

**F-BF.3** 

• Lesson #5 – Even and Odd Functions

**F-BF.3** 

## UNIT #8 - RADICALS AND THE QUADRATIC FORMULA

• Lesson #1 – Square Root Functions

F-IF.4

• Lesson #2 – Solving Square Root Equations

A-REI.2

• Lesson #3 – The Basic Exponent Properties

N-RN.2

• Lesson #4 – Fractional Exponents Revisited

N-RN.1, N-RN.2

• Lesson #5 – More Exponent Practice

N-RN.2

• Lesson #6 – The Quadratic Formula

**A-REI.4(b)** 

• Lesson #7 – More Work with the Quadratic Formula

**A-REI.4(b)** 





#### **UNIT #9 – COMPLEX NUMBERS**

- Lesson #1 Imaginary Numbers
  - N-CN.1
- Lesson #2 Complex Numbers
  - N-CN.1, N-CN.2
- Lesson #3 Solving Quadratic Equations with Complex Solutions
  - **A-REI.4, N-CN.7**
- Lesson #4 The Discriminant of a Quadratic
  - **A-REI.4, N-CN.7**

#### UNIT #10 – POLYNOMIAL AND RATIONAL FUNCTIONS

- Lesson #1 Power Functions
  - **F-IF.4, F-BF.3**
- Lesson #2 Graphs and Zeroes of a Polynomial
  - **A-APR.3, F-IF.4, F-IF.7**
- Lesson #3 Creating Polynomial Equations
  - **F-IF.7**
- Lesson #4 Polynomial Identities
  - A-APR.4
- Lesson #5 Introduction to Rational Functions
  - **F-IF.4**
- Lesson #6 Simplifying Rational Expressions
  - A-APR.6
- Lesson #7 Multiplying and Dividing Rational Expressions
  - A-APR.6
- Lesson #8 Combing Rational Expressions Using Addition and Subtraction
  - A-APR.6
- Lesson #9 Complex Fractions
  - Not addressed in standards
- Lesson #10 Polynomial Long Division
  - A-APR.6





## UNIT #10 – POLYNOMIAL AND RATIONAL FUNCTIONS (CONTINUED)

• Lesson #11 – The Remainder Theorem

A-APR.2, A-APR.6

• Lesson #12 – Solving Rational Equations

A-REI.2

• Lesson #13 – Solving Rational Inequalities

A-CED.1

• Lesson #14 - Reasoning About Radical and Rational Equations

A-REI.1

#### **UNIT #11 – THE CIRCULAR FUNCTIONS**

• Lesson #2 – Radian Angle Measurement

Lesson #1 – Rotations and Angle Terminology

In review/preparation for other standards.

F-TF.1

• Lesson #3 – The Unit Circle

**F-TF.2** 

• Lesson #4 – The Definition of the Sine and Cosine Functions

**F-TF.2, F-TF.8** 

• Lesson #5 – More Work with the Sine and Cosine Functions

**F-TF.2, F-TF.8** 

• Lesson #6 – Basic Graphs of Sine and Cosine

F-TF.5, F-IF.7(e)

• Lesson #7 – Vertical Shifting of Sinusoidal Graphs

F-TF.5, F-IF.7(e)

• Lesson #8 – The Frequency and Period of a Sinusoidal Graph

F-TF.5, F-IF.7(e)

• Lesson #9 – Sinusoidal Modeling

F-TF.5, F-IF.7(e)

• Lesson #10 – The Tangent Function

**F-TF.8** 

• Lesson #11 - The Reciprocal Functions

**F-TF.8** 





#### UNIT #12 – PROBABILITY

- Lesson #1 Introduction to Probability
   In review/preparation for other standards.
- Lesson #2 Sets and Probability
   S-CP.1
- Lesson #3 Adding Probabilities
   S-CP.7
- Lesson #4 Conditional Probability
   S-CP.3, S-CP.4, S-CP.5, S-CP.6
- Lesson #5 Independent and Dependent Events
   S-CP.2, S-CP.4, S-CP.5
- Lesson #6 Multiplying Probabilities
   S-CP.4, S-CP.2

#### UNIT #13 – STATISTICS

- Lesson #1 Variability and Sampling
   S-IC.3
- Lesson #2 Population Parameters
   In review/preparation for other standards.
- Lesson #3 The Normal Distributions
   S-ID.4
- Lesson #4 The Normal Distribution and Z-Scores
   S-ID.4
- Lesson #5 Sample Means
   S-IC.1, S-IC.2, S-IC.5
- Lesson #6 Sample Proportions
   S-IC.1, S-IC.4
- Lesson #7 The Difference in Samples Means
  - S-IC.5

    Lagger #9 The Distribution of Samula Mann
- Lesson #8 The Distribution of Sample Means
   S-IC.1, S-IC.4





## **UNIT #13 – STATISTICS (CONTINUED)**

- Lesson #9 The Distribution of Sample Proportions
   S-IC.1, S-IC.4
- Lesson #10 Margin of Error
   S-IC.1, S-IC.4
- Lesson #11 Linear Regression and Lines of Best Fit
   S-ID.6(a)
- Lesson #12 Other Types of Regression
   S-ID.6(a)



