

## Curriculum Map: Algebra 1B

Course: ALGEBRA 1 Sub-topic: Algebra

Grade(s): 9

**Course Description:** Algebra IB reviews and extends the concepts of Algebra 1A. The concept of the real number system is extended through rational, irrational, real numbers, and complex numbers. Students continue to learn the techniques and applications (models) of a variety of topics including factoring, simplifying radicals and rational expressions, solving rational equations, systems of equations and inequalities including linear programming, a review and extension of probability and statistics, and arithmetic and geometric sequences and series, and basic quadratic equations.

### Unit: Unit 1 - Exponents and Polynomial Operations

#### STANDARDS: STANDARDS

STATE: Pennsylvania SAS Keystone Anchors (2010-2014)

[A1.1.1.3 \(Advanced\)](#) Use exponents, roots, and/or absolute values to solve problems.

[A1.1.1.3.1 \(Advanced\)](#) Simplify/evaluate expressions involving properties/laws of exponents, roots, and/or absolute values to solve problems. Note: Exponents should be integers from  $-10$  to  $10$ .

#### Topic: 1.1 - Exponent Properties

Minutes for Topic: 258

#### Topic: 1.2 - Scientific Notation and Operations

Minutes for Topic: 258

#### Topic: 1.3 - Polynomial Operations

Minutes for Topic: 258

#### Topic: 1.4 - Polynomial Applications

Minutes for Topic: 172

#### Topic: 1.5 - Unit 1 Review and Test

Minutes for Topic: 258

### Unit: Unit 2 - Polynomials and Factoring

#### STANDARDS: STANDARDS

STATE: Pennsylvania SAS Keystone Anchors (2010-2014)

[A1.1.1.5 \(Advanced\)](#) Simplify expressions involving polynomials.

[A1.1.1.5.1 \(Advanced\)](#) Add, subtract, and/or multiply polynomial expressions (express answers in simplest form). Note: Nothing larger than a binomial multiplied by a trinomial.

#### Topic: 2.1 - GCF and LCM of Polynomials

Minutes for Topic: 172

#### Topic: 2.2 - Factoring by Grouping

Minutes for Topic: 86

#### Topic: 2.3 - Factoring when $LC = 1$

Minutes for Topic: 258

#### Topic: 2.4 - Solving by Factoring

Minutes for Topic: 172

#### Topic: 2.5 - Factoring Applications

Minutes for Topic: 172

#### Topic: 2.6 - Unit 2 Review and Test

Minutes for Topic: 258

## Unit: Unit 3 - Rational Expressions

### STANDARDS: STANDARDS

STATE: Pennsylvania SAS Keystone Anchors (2010-2014)

A1.1.1.5.3  
(Advanced)

Simplify/reduce a rational algebraic expression.

### Topic: 3.1 - Simplify Rational Expressions

Minutes for Topic: 172

### Topic: 3.2 - Rational Expression Operations

Minutes for Topic: 516

### Topic: 3.3 - Unit 3 Review and Test

Minutes for Topic: 258

## Unit: Unit 4 - Radical Expressions

### STANDARDS: STANDARDS

STATE: Pennsylvania SAS Keystone Anchors (2010-2014)

A2.1.3.1.2  
(Advanced)

Solve equations involving rational and/or radical expressions  
(e.g.,  $10/(x + 3) + 12/(x - 2) = 1$  or  $\sqrt{x^2 + 21x} = 14$ ).

### Topic: 4.1 - Simplifying Radicals

Minutes for Topic: 172

### Topic: 4.2 - Add/Subtract Radical Expressions

Minutes for Topic: 86

### Topic: 4.3 - Multiplying Radical Expressions

Minutes for Topic: 172

### Topic: 4.4 - Dividing Radical Expressions (Rationalizing Denominator)

Minutes for Topic: 172

### Topic: 4.5 - Solving Quadratic Equations

Minutes for Topic: 86

### Topic: 4.6 - Unit 4 Review and Test

Minutes for Topic: 172

## Unit: Unit 5 - Probability and Statistics

### STANDARDS: STANDARDS

STATE: Pennsylvania SAS Keystone Anchors (2010-2014)

A1.2.3.3 (Advanced)

Apply probability to practical situations.

A1.2.3.3.1  
(Advanced)

Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal, or percent.

### Topic: 5.1 - Central Tendencies and Grouped Mean

Minutes for Topic: 86

### Topic: 5.2 - Graphs (Circle, Line, Bar, Box and Whisker, Stem and Leaf)

Minutes for Topic: 86

### Topic: 5.3 - Probability

Minutes for Topic: 258

### Topic: 5.4 - Permutations and Combinations

Minutes for Topic: 172

### Topic: 5.5 - Unit 5 Review and Test

Minutes for Topic: 172

## Unit: Unit 6 - Review of Relations and Functions

<b>STANDARDS:</b>	<b>STANDARDS</b>	
	<u>STATE: Pennsylvania SAS Keystone Anchors (2010-2014)</u>	
	<a href="#">A1.2.1 (Advanced)</a>	Functions
	<a href="#">A1.2.1.1.2 (Advanced)</a>	Determine whether a relation is a function, given a set of points or a graph.

This Curriculum Map Unit has no Topics to display

**Unit: Unit 7 - Keystone Review**

**Topic: 7.1 - Keystone Review**  
Minutes for Topic: 860

**Unit: Unit 8 - Quadratics**

**Topic: 8.1 - Factoring and Extracting Roots**  
Minutes for Topic: 86

**Topic: 8.2 - Quadratic Formula**  
Minutes for Topic: 172