

Curriculum Map: Integrated Mathematics

Course: INTEGRATED MATH Sub-topic: General

Grade(s): 11 to 12

Course Description: Integrated Math is designed to develop skills needed to be successful on the SAT mathematics exam. Topics covered will build strengths in geometry, while also developing skills in radicals, complex numbers, exponents, right triangle trigonometry, linear, quadratic, and polynomial functions. Business-related mathematics will also be explored to include topics such as sales, discounts, interest, budgeting, and investments. Students should be better prepared for future educational or employment pursuits. Graphing calculators will be used extensively, and therefore it is strongly recommended that each student have a TI-84 calculator for the course.

Unit: Unit 1 - Operations and Factoring Polynomials

STANDARDS: STANDARDS

STATE: Pennsylvania SAS Keystone Anchors (2010-2014)

A2.1.2.2 (Advanced) Simplify expressions involving polynomials.

A2.1.2.2.1 (Advanced) Factor algebraic expressions, including difference of squares and trinomials. Note: Trinomials limited to the form ax^2+bx+c where a is not equal to 0.

Topic: 1.1 - Simplify Polynomials by Multiplying

Minutes for Topic: 258

Topic: 1.2 - Find GCF/LCM of Polynomials

Minutes for Topic: 172

Topic: 1.3 - Factoring Polynomials (All Methods)

Minutes for Topic: 516

Topic: 1.4 - Unit 1 Review and Test

Minutes for Topic: 172

Unit: Unit 2 - Solving Quadratic Equations and Radicals

STANDARDS: STANDARDS

STATE: Pennsylvania SAS Keystone Anchors (2010-2014)

A2.1.2.1 (Advanced) Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems.

A2.1.2.1.2 (Advanced) Simplify/evaluate expressions involving positive and negative exponents and/or roots (may contain all types of real numbers—exponents should not exceed power of 10).

A2.1.3.1.2 (Advanced) Solve equations involving rational and/or radical expressions (e.g., $10/(x + 3) + 12/(x - 2) = 1$ or $\sqrt{x^2 + 21x} = 14$).

A2.1.3.2.2 (Advanced) Use algebraic processes to solve a formula for a given variable (e.g., solve $d = rt$ for r).

Topic: 2.1 - Solve Quadratic Equations by Factoring

Minutes for Topic: 86

Topic: 2.2 - Simplify Radicals and Extract Roots

Minutes for Topic: 430

Topic: 2.3 - Solve by Completing the Square, Quadratic Formula, and Square Roots

Minutes for Topic: 258

Topic: 2.4 - Solving Applications with Quadratic Formula and Square Roots

Minutes for Topic: 344

Topic: 2.5 - Unit 2 Review and Test

Minutes for Topic: 172

Unit: Unit 3 - Quadratics Functions

STANDARDS: STANDARDS

STATE: Pennsylvania SAS Keystone Anchors (2010-2014)

A2.1.2.1 (Advanced)	Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems.	
A2.1.2.1.1 (Advanced)	Use exponential expressions to represent rational numbers.	
A2.1.3.2.2 (Advanced)	Use algebraic processes to solve a formula for a given variable (e.g., solve $d = rt$ for r).	

Topic: 3.1 - Vertex and Standard Forms (Graphically and Algebraically)

Minutes for Topic: 516

Topic: 3.2 - Applications of Quadratics

Minutes for Topic: 258

Topic: 3.3 - Unit 3 Test and Review

Minutes for Topic: 172

Unit: Unit 4 - Right Triangles

STANDARDS: STANDARDS

STATE: PA Core Anchors and Eligible Content (2014)

M06.C-G.1.1.4 (Advanced) Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths and area of the polygon (limited to triangles and special quadrilaterals). Formulas will be provided.

M07.C-G.1.1.1 (Advanced) Solve problems involving scale drawings of geometric figures, including finding length and area.

M07.C-G.1.1.2 (Advanced) Identify or describe the properties of all types of triangles based on angle and side measures.

M07.C-G.1.1.3 (Advanced) Use and apply the triangle inequality theorem.

STATE: Pennsylvania SAS Academic Standards (2009-2013)

2.10.A1.A (Advanced) Solve problems involving from the Pythagorean Theorem.

Topic: 4.1 - Classifying Triangles

Minutes for Topic: 86

Topic: 4.2 - Pythagorean Theorem and Its Converse

Minutes for Topic: 344

Topic: 4.3 - Special Right Triangle Applications

Minutes for Topic: 430

Topic: 4.4 - Unit 4 Review and Test

Minutes for Topic: 172

Unit: Unit 5 - Right Triangle Trigonometry

STANDARDS: STANDARDS

STATE: Pennsylvania SAS Academic Standards (2009-2013)

2.10.5.A (Advanced) Identify and compare parts of right triangles, including right angles, acute angles, hypotenuses, and legs.

2.10.7.A (Advanced) Compute measures of sides and angles using proportions, the Pythagorean Theorem, and right triangle relationships.

2.10.11.A (Advanced) Identify, create, and solve practical problems involving right triangles using the trigonometric functions and the Pythagorean Theorem.

2.10.A1.A (Advanced) Solve problems involving from the Pythagorean Theorem.

Topic: 5.1 - Trigonometric Functions

Minutes for Topic: 344

Topic: 5.2 - Inverse Trig Functions

Minutes for Topic: 344

Topic: 5.3 - Trigonometric Applications

Minutes for Topic: 258

Topic: 5.4 - Unit 5 Review and Test

Minutes for Topic: 172

Unit: Unit 6 - Exponent Properties

STANDARDS: STANDARDS

STATE: Pennsylvania SAS Keystone Anchors (2010-2014)

[A2.1.2.1 \(Advanced\)](#) Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems.

[A2.1.2.1.2 \(Advanced\)](#) Simplify/evaluate expressions involving positive and negative exponents and/or roots (may contain all types of real numbers—exponents should not exceed power of 10).

[A2.1.2.1.3 \(Advanced\)](#) Simplify/evaluate expressions involving multiplying with exponents (e.g., $x^6 \cdot x^7 = x^{13}$), powers of powers (e.g., $(x^6)^7 = x^{42}$), and powers of products (e.g., $(2x^2)^3 = 8x^6$).
Note: Limit to rational exponents.

Topic: 6.1 - Applying Laws of Exponents (Properties)

Minutes for Topic: 258

Topic: 6.2 - Rational Exponents

Minutes for Topic: 344

Topic: 6.3 - Problem-solving, Domain, and Applications

Minutes for Topic: 172

Topic: 6.4 - Unit 6 Review and Test

Minutes for Topic: 172

Unit: Unit 7 - Rational Expressions and Proportions

STANDARDS: STANDARDS

STATE: Pennsylvania SAS Keystone Anchors (2010-2014)

[A2.1.2.1.1 \(Advanced\)](#) Use exponential expressions to represent rational numbers.

[A2.1.2.2.2 \(Advanced\)](#) Simplify rational algebraic expressions.

[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: 7.1 - Domain Restrictions

Minutes for Topic: 172

Topic: 7.2 - Operations and Simplifying Rational Expressions

Minutes for Topic: 430

Topic: 7.3 - Solving Rational Equations and Proportions

Minutes for Topic: 258

Topic: 7.4 - Applications

Minutes for Topic: 86

Topic: 7.5 - Unit 7 Review and Test

Minutes for Topic: 172