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Integrated Math II High School Math Solution
Correlation to the 2018 North Carolina Standard Course of Study

CARNEGIE LEARNING

Standard ID	Description	Location	Module	Topic (Textbook)/ Unit (MATHia Software)	Lesson (Textbook) / Workspace (MATHia Software)
NC.M2.N-RN.1	Explain how expressions with rational exponents can be rewritten as radical expressions.	Integrated Math II Textbook	3: Exploring Functions	2: Exponentials	1: Got Chills...They're Multiplyin': Exponential Functions and Rational Exponents pp. M3-89A–M3-106
		Integrated Math III Textbook	3: Inverting Functions	1: Radical Functions	4: Keepin' It Real: Rewriting Radical Expressions pp. M3-51A–M3-70
		Integrated Math II MATHia Software	3: Exploring Functions	4: Rational Exponents	1: Properties of Rational Exponents
NC.M2.N-RN.2	Rewrite expressions with radicals and rational exponents into equivalent expressions using the properties of exponents.	Integrated Math II Textbook	1: Reasoning With Shapes	2: Justifying Line and Angle Relationships	4: Identical Twins: Perpendicular Bisector and Isosceles Triangle Theorems pp. M1-143A–M1-164
			3: Exploring Functions	2: Exponentials	1: Got Chills...They're Multiplyin': Exponential Functions and Rational Exponents pp. M3-89A–M3-106
			4: Seeing Structure	1: Solving Quadratic Equations	5: Ladies and Gents, Please Welcome the Quadratic Formula!: The Quadratic Formula pp. M4-81A–M4-102
		Integrated Math III Textbook	3: Inverting Functions	1: Radical Functions	4: Keepin' It Real: Rewriting Radical Expressions pp. M3-51A–M3-70
		Integrated Math II MATHia Software	3: Exploring Functions	4: Rational Exponents	2: Rewriting Expressions with Radical and Rational Exponents
NC.M2.N-RN.3	Use the properties of rational and irrational numbers to explain why: • the sum or product of two rational numbers is rational; • the sum of a rational number and an irrational number is irrational; • the product of a nonzero rational number and an irrational number is irrational.	Integrated Math II Textbook	3: Exploring Functions	2: Exponentials	1: Got Chills...They're Multiplyin': Exponential Functions and Rational Exponents pp. M3-89A–M3-106
			4: Seeing Structure	1: Solving Quadratic Equations	5: Ladies and Gents, Please Welcome the Quadratic Formula!: The Quadratic Formula pp. M4-81A–M4-102
NC.M2.N-CN.1	Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real numbers.	Integrated Math II Textbook	4: Seeing Structure	1: Solving Quadratic Equations	5: Ladies and Gents, Please Welcome the Quadratic Formula!: The Quadratic Formula pp. M4-81A–M4-102
				2: Applications of Quadratics	1: *i* Want to Believe: Imaginary and Complex Numbers pp. M4-115–M4-136

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NC.M2.N-CN.1	Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real numbers.	Integrated Math II MATHia Software	4: Seeing Structure	5: Operations with Complex Numbers	1: Introduction to Complex Numbers
					2: Simplifying Radicals with Negative Radicands
					3: Simplifying Powers of i
NC.M2.A-SSE.1a	Identify and interpret parts of a quadratic, square root, inverse variation, or right triangle trigonometric expression, including terms, factors, coefficients, radicands, and exponents.	Integrated Math II Textbook	3: Exploring Functions	3: Introduction to Quadratic Functions	3: More Than Meets the Eye: Transformations of Quadratic Functions pp. M3-191A–M3-216
					4: You Lose Some, You Lose Some: Comparing Functions Using Key Characteristics and Average Rate of Change pp. M3-217A–M3-232
			4: Seeing Structure	1: Solving Quadratic Equations	5: Ladies and Gents, Please Welcome the Quadratic Formula!: The Quadratic Formula pp. M4-81A–M4-102
NC.M2.A-SSE.1b	Interpret quadratic and square root expressions made of multiple parts as a combination of single entities to give meaning in terms of a context.	Integrated Math II Textbook	4: Seeing Structure	1: Solving Quadratic Equations	5: Ladies and Gents, Please Welcome the Quadratic Formula!: The Quadratic Formula pp. M4-81A–M4-102
NC.M2.A-SSE.3	Write an equivalent form of a quadratic expression by completing the square, where a is an integer of a quadratic expression, ax^2+bx+c, to reveal the maximum or minimum value of the function the expression defines.	Integrated Math II Textbook	4: Seeing Structure	1: Solving Quadratic Equations	4: The Missing Link: Factoring and Completing the Square pp. M4-59A–M4-80
		Integrated Math II MATHia Software	4: Seeing Structure	3: Forms of Quadratics	5: Converting Quadratics to Vertex Form
NC.M2.A-APR.1	Extend the understanding that operations with polynomials are comparable to operations with integers by adding, subtracting, and multiplying polynomials.	Integrated Math II Textbook	4: Seeing Structure	2: Applications of Quadratic Equations	3: All Systems Are Go!: Systems of Quadratic Equations pp. M4-147A–M4-158
NC.M2.A-CED.1	Create equations and inequalities in one variable that represent quadratic, square root, inverse variation, and right triangle trigonometric relationships and use them to solve problems.	Integrated Math II Textbook	4: Seeing Structure	2: Applications of Quadratic Equations	2: Ahead of the Curve: Solving Quadratic Inequalities pp. M4-137A–M4-146
		Integrated Math II MATHia	3: Exploring Functions	6: Quadratic Models in Factored Form	1: Modeling Area as Product of Monomial and Binomial
					2: Modeling Area as Product of Two Binomials
NC.M2.A-CED.2	Create and graph equations in two variables to represent quadratic, square root and inverse variation relationships between quantities.	Integrated Math II Textbook	4: Seeing Structure	2: Applications of Quadratic Equations	2: Ahead of the Curve: Solving Quadratic Inequalities pp. M4-137A–M4-146
					3: All Systems Are Go!: Systems of Quadratic Equations pp. M4-147A–M4-158

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NC.M2.A-CED.3	Create systems of linear, quadratic, square root, and inverse variation equations to model situations in context.	Integrated Math II Textbook	4: Seeing Structure	2: Applications of Quadratic Equations	2: Ahead of the Curve: Solving Quadratic Inequalities pp. M4-137A–M4-146
					3: All Systems Are Go!: Systems of Quadratic Equations pp. M4-147A–M4-158
NC.M2.A-REI.1	Justify a chosen solution method and each step of the solving process for quadratic, square root and inverse variation equations using mathematical reasoning.	Integrated Math II Textbook	4: Seeing Structure	1: Solving Quadratic Equations	3: Transforming Solutions: Solutions to Quadratic Equations in Vertex Form pp. M4-47A–M4-58
NC.M2.A-REI.2	Solve and interpret one variable inverse variation and square root equations arising from a context, and explain how extraneous solutions may be produced.	Integrated Math III Textbook	3: Inverting Functions	1: Radical Functions	5: Into the Unknown: Solving Radical Equations pp. M3-71A–M3-80
NC.M2.A-REI.4	Solve for all solutions of quadratic equations in one variable.	Integrated Math II Textbook	4: Seeing Structure	1: Solving Quadratic Equations	5: Ladies and Gents, Please Welcome the Quadratic Formula!: The Quadratic Formula pp. M4-81A–M4-102
				2: Applications of Quadratic Equations	2: Ahead of the Curve: Solving Quadratic Inequalities pp. M4-137A–M4-146
NC.M2.A-REI.4a	Understand that the quadratic formula is the generalization of solving ax^2+bx+c by using the process of completing the square.	Integrated Math II Textbook	4: Seeing Structure	1: Solving Quadratic Equations	4: The Missing Link: Factoring and Completing the Square pp. M4-59A–M4-80
					5: Ladies and Gents, Please Welcome the Quadratic Formula!: The Quadratic Formula pp. M4-81A–M4-102
				2: Applications of Quadratic Equations	2: Ahead of the Curve: Solving Quadratic Inequalities pp. M4-137A–M4-146
		Integrated Math II MATHia Software	4: Seeing Structure	3: Forms of Quadratics	1: Completing the Square

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NC.M2.A-REI.4b	Explain when quadratic equations will have non-real solutions and express complex solutions as $a \pm bi$ for real numbers a and b.	Integrated Math II Textbook	4: Seeing Structure	1: Solving Quadratic Equations	5: Ladies and Gents, Please Welcome the Quadratic Formula!: The Quadratic Formula pp. M4-81A–M4-102
				2: Applications of Quadratics	1: *i* Want to Believe: Imaginary and Complex Numbers pp. M4-115–M4-136
				2: Applications of Quadratic Equations	2: Ahead of the Curve: Solving Quadratic Inequalities pp. M4-137A–M4-146
		Integrated Math II	4: Seeing Structure	4: Quadratic Equation Solving	2: Solving Quadratic Equations by Factoring
					3: Solving Quadratic Equations
NC.M2.A-REI.7	Use tables, graphs, and algebraic methods to approximate or find exact solutions of systems of linear and quadratic equations, and interpret the solutions in terms of a context.	Integrated Math II Textbook	4: Seeing Structure	2: Applications of Quadratic Equations	3: All Systems Are Go!: Systems of Quadratic Equations pp. M4-147A–M4-158
				3: Circles on a Coordinate Plane	2: A Blip on the Radar: Determining Points on a Circle pp. M4-201A–M4-216
NC.M2.F-IF.1	Extend the concept of a function to include geometric transformations in the plane by recognizing that: • the domain and range of a transformation function f are sets of points in the plane; • the image of a transformation is a function of its pre-image.	Integrated Math I Textbook	5: Analyzing Geometric Functions	2: Rigid Motions on a Plane	1: Put Your Input In, Take Your Output Out: Geometric Components of Rigid Motions pp. M5-53A–M5-66
					2: Bow Thai: Translations as Functions pp. M5-67A–M5-78
					3: Staring Back at Me: Reflections as Functions pp. M5-79A–M5-92
					4: Turn Yourself Around: Rotations as Functions pp. M5-93A–M5-106
NC.M2.F-IF.2	Extend the use of function notation to express the image of a geometric figure in the plane resulting from a translation, rotation by multiples of 90 degrees about the origin, reflection across an axis, or dilation as a function of its pre-image.	Integrated Math I Textbook	5: Analyzing Geometric Functions	2: Rigid Motions on a Plane	2: Bow Thai: Translations as Functions pp. M5-67A–M5-78
					3: Staring Back at Me: Reflections as Functions pp. M5-79A–M5-92
					4: Turn Yourself Around: Rotations as Functions pp. M5-93A–M5-106

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NC.M2.F-IF.4	Interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities, including: domain and range, rate of change, symmetries, and end behavior.	Integrated Math II Textbook	3: Exploring Functions	1: Functions Derived from Linear Relationships	3: I Graph in Pieces: Linear Piecewise Functions pp. M3-39A–M3-52
		Integrated Math III Textbook	3: Inverting Functions	1: Radical Functions	2: Such a Rad Lesson: Radical Functions pp. M3-19A–M3-40
		Integrated Math II MATHia Software	3: Exploring Functions	6: Quadratic Models in Factored Form	3: Interpreting Maximums of Quadratic Models
				7: Quadratic Models in General Form	1: Modeling Projectile Motion
					2: Recognizing Key Features of Vertical Motion Graphs
		Integrated Math III	3: Inverting Functions	1: Inverses of Functions	3: Sketching Graphs of Inverses
					4: Calculating Inverses of Linear Functions
NC.M2.F-IF.7	Analyze quadratic, square root, and inverse variation functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features, including: domain and range; intercepts; intervals where the function is increasing, decreasing, positive, or negative; rate of change; maximums and minimums; symmetries; and end behavior.	Integrated Math II Textbook	3: Exploring Functions	1: Functions Derived from Linear Relationships	1: Putting the V in Absolute Value: Building Volume and Surface Area Formulas for Pyramids, Cones, and Spheres pp. M3-7A–M3-24
					2: Play Ball!: Absolute Value Equations and Inequalities pp. M3-25A–M3-38
					3: I Graph in Pieces: Linear Piecewise Functions pp. M3-39A–M3-52
					4: Step by Step: Step Functions pp. M3-53–M3-64
			4: Seeing Structure	2: Applications of Quadratic Equations	4: Model Behavior: Using Quadratic Functions to Model Data pp. M4-159A–M4-174
		Integrated Math III Textbook	3: Inverting Functions	1: Radical Functions	1: Strike That, Invert It: Inverses of Power Functions pp. M3-7A–M3-18
					2: Such a Rad Lesson: Radical Functions pp. M3-19A–M3-40
					3: Making Waves: Transformations of Radical Functions pp. M3-41A–M3-50
		Integrated Math III	3: Inverting Functions	1: Inverses of Functions	1: Investigating Inverses of Functions
					2: Graphing Square Root Functions

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NC.M2.F-IF.8	Use equivalent expressions to reveal and explain different properties of a function by developing and using the process of completing the square to identify the zeros, extreme values, and symmetry in graphs and tables representing quadratic functions, and interpret these in terms of a context.	Integrated Math II Textbook	4: Seeing Structure	1: Solving Quadratic Equations	4: The Missing Link: Factoring and Completing the Square pp. M4-59A–M4-80
		Integrated Math II MATHia Software	4: Seeing Structure	3: Forms of Quadratics	1: Completing the Square
					2: Identifying the Properties of Quadratic Functions
					5: Converting Quadratics to Vertex Form
NC.M2.F-IF.9	Compare key features of two functions (linear, quadratic, square root, or inverse variation functions) each with a different representation (symbolically, graphically, numerically in tables, or by verbal descriptions).	Integrated Math II Textbook	3: Exploring Functions	3: Introduction to Quadratic Functions	4: You Lose Some, You Lose Some: Comparing Functions Using Key Characteristics and Average Rate of Change pp. M3-217A–M3-232
		Integrated Math III Textbook	3: Inverting Functions	1: Radical Functions	3: Making Waves: Transformations of Radical Functions pp. M3-41A–M3-50
		Integrated Math II MATHia Software	4: Seeing Structure	3: Forms of Quadratics	7: Comparing Quadratic Functions in Different Forms
NC.M2.F-BF.1	Write a function that describes a relationship between two quantities by building quadratic functions with real solution(s) and inverse variation functions given a graph, a description of a relationship, or ordered pairs (include reading these from a table).	Integrated Math II Textbook	3: Exploring Functions	3: Introduction to Quadratic Functions	3: More Than Meets the Eye: Transformations of Quadratic Functions pp. M3-191A–M3-216
NC.M2.F-BF.3	Extend an understanding of the effects on the graphical and tabular representations of a linear, quadratic, square root, and inverse variation function f with $kf(x)$, $f(x) + k$, $f(x + k)$ to include $f(kx)$ for specific values of k (both positive and negative).	Integrated Math II Textbook	3: Exploring Functions	3: Introduction to Quadratic Functions	3: More Than Meets the Eye: Transformations of Quadratic Functions pp. M3-191A–M3-216
		Integrated Math III Textbook	3: Inverting Functions	1: Radical Functions	3: Making Waves: Transformations of Radical Functions pp. M3-41A–M3-50
		Integrated Math II MATHia Software	3: Exploring Functions	5: Linear and Exponential Transformations	1: Introduction to Transforming Exponential Functions

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NC.M2.F-BF.3	Extend an understanding of the effects on the graphical and tabular representations of a linear, quadratic, square root, and inverse variation function *f* with *kf*(*x*), *f*(*x*) + *k*, *f*(*x* + *k*) to include *f*(*kx*) for specific values of *k* (both positive and negative).	Integrated Math II MATHia Software	3: Exploring Functions	5: Linear and Exponential Transformations	2: Shifting Vertically
					3: Reflecting and Dilating using Graphs
					4: Shifting Horizontally
					5: Transforming using Tables of Values
					6: Using Multiple Transformations
				8: Linear and Quadratic Transformations	1: Shifting Vertically
					2: Reflecting and DIlating using Graphs
					3: Shifting Horizontally
					4: Transforming Using Tables of Values
					5: Using Multiple Transformations
			4: Seeing Structure	6: Function Operations	2: Operating with Functions on the Coordinate Plane
NC.M2.G-CO.2	Experiment with transformations in the plane. • Represent transformations in the plane. • Compare rigid motions that preserve distance and angle measure (translations, reflections, rotations) to transformations that do not preserve both distance and angle measure (e.g. stretches, dilations). • Understand that rigid motions produce congruent figures while dilations produce similar figures.	Integrated Math I Textbook	5: Analyzing Geometric Functions	2: Rigid Motions on a Plane	2: Bow Thai: Translations as Functions pp. M5-67A–M5-78
					3: Staring Back at Me: Reflections as Functions pp. M5-79A–M5-92
					4: Turn Yourself Around: Rotations as Functions pp. M5-93A–M5-106
NC.M2.G-CO.3	Given a triangle, quadrilateral, or regular polygon, describe any reflection or rotation symmetry i.e., actions that carry the figure onto itself. Identify center and angle(s) of rotation symmetry. Identify line(s) of reflection symmetry.	Integrated Math I Textbook	5: Analyzing Geometric Functions	2: Rigid Motions on a Plane	5: OKEECHOBEE: Reflectional and Rotational Symmetry pp. M5-107A–M5-116
		Integrated Math I MATHia Software	5: Analyzing Geometric Functions	2: Rigid Motion	2: Rotations and Reflections on the Plane

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NC.M2.G-CO.4	Verify experimentally properties of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	Integrated Math I Textbook	5: Analyzing Geometric Functions	2: Rigid Motions on a Plane	1: Put Your Input In, Take Your Output Out: Geometric Components of Rigid Motions pp. M5-53A–M5-66
					2: Bow Thai: Translations as Functions pp. M5-67A–M5-78
					3: Staring Back at Me: Reflections as Functions pp. M5-79A–M5-92
					4: Turn Yourself Around: Rotations as Functions pp. M5-93A–M5-106
		Integrated Math I MATHia Software	5: Analyzing Geometric Functions	2: Rigid Motion	1: Developing Definitions of Rigid Motions
NC.M2.G-CO.5	Given a geometric figure and a rigid motion, find the image of the figure. Given a geometric figure and its image, specify a rigid motion or sequence of rigid motions that will transform the pre-image to its image.	Integrated Math I Textbook	5: Analyzing Geometric Functions	2: Rigid Motions on a Plane	3: Staring Back at Me: Reflections as Functions pp. M5-79A–M5-92
					4: Turn Yourself Around: Rotations as Functions pp. M5-93A–M5-106
		Integrated Math I MATHia Software	5: Analyzing Geometric Functions	2: Rigid Motion	3: Specifying a Sequence of Transformations
NC.M2.G-CO.6	Determine whether two figures are congruent by specifying a rigid motion or sequence of rigid motions that will transform one figure onto the other.	Integrated Math I Textbook	5: Analyzing Geometric Functions	2: Rigid Motions on a Plane	1: Put Your Input In, Take Your Output Out: Geometric Components of Rigid Motions pp. M5-53A–M5-66
				3: Congruence Through Transformations	3: I Never Forget a Face: Using Triangle Congruence to Solve Problems pp. M5-159–M5-170
NC.M2.G-CO.7	Use the properties of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	Integrated Math I Textbook	5: Analyzing Geometric Functions	3: Congruence Through Transformations	2: ASA, SAS, and SSS: Proving Triangle Congruence Theorems pp. M5-143–M5-169
		Integrated Math II MATHia Software	1: Reasoning with Shapes	8: Triangle Congruence	1: Introduction to Triangle Congruence
		Integrated Math I MATHia Software	5: Analyzing Geometric Functions	3: Triangle Congruence	1: Introduction to Triangle Congruence

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NC.M2.G-CO.8	Use congruence in terms of rigid motion. Justify the ASA, SAS, and SSS criteria for triangle congruence. Use criteria for triangle congruence (ASA, SAS, SSS, HL) to determine whether two triangles are congruent.	Integrated Math I Textbook	5: Analyzing Geometric Functions	3: Congruence Through Transformations	2: ASA, SAS, and SSS: Proving Triangle Congruence Theorems pp. M5-143–M5-169
		Integrated Math II MATHia Software	1: Reasoning with Shapes	8: Triangle Congruence	1: Introduction to Triangle Congruence
		Integrated Math I MATHia Software	5: Analyzing Geometric Functions	3: Triangle Congruence	1: Introduction to Triangle Congruence
					2: Proving Triangles Congruent using SAS and SSS
					3: Proving Triangles Congruent using AAS and ASA
					4: Using Triangle Congruence
NC.M2.G-CO.9	Prove theorems about lines and angles and use them to prove relationships in geometric figures including: • Vertical angles are congruent. • When a transversal crosses parallel lines, alternate interior angles are congruent. • When a transversal crosses parallel lines, corresponding angles are congruent. • Points are on a perpendicular bisector of a line segment if and only if they are equidistant from the endpoints of the segment. • Use congruent triangles to justify why the bisector of an angle is equidistant from the sides of the angle.	Integrated Math II Textbook	1: Reasoning With Shapes	1: Composing and Decomposing Shapes	1: Running Circles Around Geometry: Using Circles to Make Conjectures pp. M1-7A–M1-22
				2: Justifying Line and Angle Relationships	1: Proof Positive: Forms of Proof pp. M1-85A–M1-106
					2: A Parallel Universe: Proving Parallel Line Theorems pp. M1-107A–M1-126
					4: Identical Twins: Perpendicular Bisector and Isosceles Triangle Theorems pp. M1-143A–M1-164
		Integrated Math II MATHia Software	1: Reasoning with Shapes	4: Angle Properties	1: Calculating and Justifying Angle Measures
					2: Calculating Angle Measures
				5: Introduction to Proofs with Segments and Angles	2: Connecting Steps in Angle Proofs
					4: Using Angle Theorems
				6: Lines Cut by a Transversal	1: Classifying Angles Formed by Transversals
					2: Calculating Angle Measures Formed by Transversals
					3: Calculating Angles Formed by Multiple Transversals
				7: Parallel Lines Theorems	1: Proving Parallel Lines Theorems
					2: Proving the Converses of Parallel Lines Theorems

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NC.M2.G-CO.10	Prove theorems about triangles and use them to prove relationships in geometric figures including: • The sum of the measures of the interior angles of a triangle is 180°. • An exterior angle of a triangle is equal to the sum of its remote interior angles. • The base angles of an isosceles triangle are congruent. • The segment joining the midpoints of two sides of a triangle is parallel to the third side and half the length.	Integrated Math II Textbook	1: Reasoning With Shapes	1: Composing and Decomposing Shapes	1: Running Circles Around Geometry: Using Circles to Make Conjectures pp. M1-7A–M1-22
					4: Tri Tri- Tri- and Separate Them: Conjectures About Triangles pp. M1-41A–M1-54
				2: Justifying Line and Angle Relationships	3: Ins and Outs: Interior and Exterior Angles of Polygons pp. M1-127A–M1-142
					4: Identical Twins: Perpendicular Bisector and Isosceles Triangle Theorems pp. M1-143A–M1-164
				3: Using Congruence Theorems	1: SSS, SAS, AAS, . . . S.O.S!: Using Triangle Congruence to Determine Relationships Between Segments pp. M1-209A–M2-220
		Integrated Math II MATHia Software	1: Reasoning with Shapes	8: Triangle Congruence	2: Proving Triangles Congruent using SAS and SSS
					3: Proving Triangles Congruent using AAS and ASA
					4: Proving Triangles Congruent using HL and HA
					5: Using Triangle Congruence
					6: Proving Theorems using Congruent Triangles
				9: Triangle Theorems	1: Proving Triangle Theorems
					2: Using Triangle Theorems
NC.M2.G-SRT.1	Verify experimentally the properties of dilations with given center and scale factor:	Integrated Math II Textbook	2: Investigating Proportionality	1: Similarity	1: Big, Little, Big, Little: Dilating Figures to Create Similar Figures pp. M2-7A–M2-21
NC.M2.G-SRT.1a	When a line segment passes through the center of dilation, the line segment and its image lie on the same line. When a line segment does not pass through the center of dilation, the line segment and its image are parallel.	Integrated Math II Textbook	2: Investigating Proportionality	1: Similarity	1: Big, Little, Big, Little: Dilating Figures to Create Similar Figures pp. M2-7A–M2-21
					3: Keep It in Proportion: Theorems About Proportionality pp. M2-37A–M2-64
NC.M2.G-SRT.1b	The length of the image of a line segment is equal to the length of the line segment multiplied by the scale factor.	Integrated Math II Textbook	2: Investigating Proportionality	1: Similarity	1: Big, Little, Big, Little: Dilating Figures to Create Similar Figures pp. M2-7A–M2-21

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NC.M2.G-SRT.1c	The distance between the center of a dilation and any point on the image is equal to the scale factor multiplied by the distance between the dilation center and the corresponding point on the pre-image.	Integrated Math II Textbook	2: Investigating Proportionality	1: Similarity	1: Big, Little, Big, Little: Dilating Figures to Create Similar Figures pp. M2-7A–M2-21
NC.M2.G-SRT.1d	Dilations preserve angle measure.	Integrated Math II Textbook	2: Investigating Proportionality	1: Similarity	1: Big, Little, Big, Little: Dilating Figures to Create Similar Figures pp. M2-7A–M2-21
NC.M2.G-SRT.2	Understand similarity in terms of transformations.	Integrated Math II Textbook	2: Investigating Proportionality	1: Similarity	1: Big, Little, Big, Little: Dilating Figures to Create Similar Figures pp. M2-7A–M2-21
		Integrated Math II MATHia Software	2: Investigating Proportionality	1: Similar Triangles	1: Understanding Similarity
NC.M2.G-SRT.2a	Determine whether two figures are similar by specifying a sequence of transformations that will transform one figure into the other	Integrated Math II Textbook	2: Investigating Proportionality	1: Similarity	1: Big, Little, Big, Little: Dilating Figures to Create Similar Figures pp. M2-7A–M2-21
NC.M2.G-SRT.2b	Use the properties of dilations to show that two triangles are similar when all corresponding pairs of sides are proportional and all corresponding pairs of angles are congruent.	Integrated Math II Textbook	2: Investigating Proportionality	1: Similarity	1: Big, Little, Big, Little: Dilating Figures to Create Similar Figures pp. M2-7A–M2-21 2: Similar Triangles or Not?: Establishing Triangle Similarity Criteria pp. M2-23A–M2-35
NC.M2.G-SRT.3	Use transformations (rigid motions and dilations) to justify the AA criterion for triangle similarity.	Integrated Math II Textbook	2: Investigating Proportionality	1: Similarity	2: Similar Triangles or Not?: Establishing Triangle Similarity Criteria pp. M2-23A–M2-35 4: This Isn't Your Average Mean: More Similar Triangles pp. M2-65A–M2-78
NC.M2.G-SRT.4	Use similarity to solve problems and to prove theorems about triangles. Use theorems about triangles to prove relationships in geometric figures. • A line parallel to one side of a triangle divides the other two sides proportionally and its converse. • The Pythagorean Theorem	Integrated Math II Textbook	2: Investigating Proportionality	1: Similarity	3: Keep It in Proportion: Theorems About Proportionality pp. M2-37A–M2-64 4: This Isn't Your Average Mean: More Similar Triangles pp. M2-65A–M2-78
		Integrated Math II MATHia Software	2: Investigating Proportionality	1: Similar Triangles	3: Proofs Using Similar Triangles

Standard ID	Description	Location	Module	Topic (Textbook)/ Unit (MATHia Software)	Lesson (Textbook) / Workspace (MATHia Software)
NC.M2.G-SRT.6	Verify experimentally that the side ratios in similar right triangles are properties of the angle measures in the triangle, due to the preservation of angle measure in similarity. Use this discovery to develop definitions of the trigonometric ratios for acute angles.	Integrated Math II Textbook	2: Investigating Proportionality	2: Trigonometry	1: Three Angle Measure: Introduction to Trigonometry pp. M2-121A–M2-135
					2: The Tangent Ratio: Tangent Ratio, Cotangent Ratio, and Inverse Tangent pp. M2-137A–M2-153
					3: The Sine Ratio: Sine Ratio, Cosecant Ratio, and Inverse Sine pp. M2-155A–M2-169
					4: The Cosine Ratio: Cosine Ratio, Secant Ratio, and Inverse Cosine pp. M2-171A–M2-185
		Integrated Math II MATHia Software	2: Investigating Proportionality	2: Trigonometric Ratios	1: Introduction to Trigonometric Ratios
NC.M2.G-SRT.8	Use trigonometric ratios and the Pythagorean Theorem to solve problems involving right triangles in terms of a context	Integrated Math II Textbook	2: Investigating Proportionality	2: Trigonometry	2: The Tangent Ratio: Tangent Ratio, Cotangent Ratio, and Inverse Tangent pp. M2-137A–M2-153
					3: The Sine Ratio: Sine Ratio, Cosecant Ratio, and Inverse Sine pp. M2-155A–M2-169
					4: The Cosine Ratio: Cosine Ratio, Secant Ratio, and Inverse Cosine pp. M2-171A–M2-185
					5: We Complement Each Other: Complement Angle Relationships pp. M2-187A–M2-198
		Integrated Math II MATHia Software	2: Investigating Proportionality	3: Right Triangles and Trigonometric Ratios	1: Using One Trigonometric Ratio to Solve Problems
					2: Using Multiple Trigonometric Ratios to Solve Problems
NC.M2.G-SRT.12	Develop properties of special right triangles (45-45-90 and 30-60-90) and use them to solve problems.	Integrated Math II Textbook	1: Reasoning With Shapes	1: Composing and Decomposing Shapes	4: Tri Tri- Tri- and Separate Them: Conjectures About Triangles pp. M1-41A–M1-54
				2: Justifying Line and Angle Relationships	4: Identical Twins: Perpendicular Bisector and Isosceles Triangle Theorems pp. M1-143A–M1-164
			2: Investigating Proportionality	2: Trigonometry	1: Three Angle Measure: Introduction to Trigonometry pp. M2-121A–M2-135

Standard ID	Description	Location	Module	Topic (Textbook)/ Unit (MATHia Software)	Lesson (Textbook) / Workspace (MATHia Software)
NC.M2.S-CP.1	Describe events as subsets of the outcomes in a sample space using characteristics of the outcomes or as unions, intersections and complements of other events.	Integrated Math II Textbook	5: Making Informed Decisions	1: Independence and Conditional Probability	1: What Are the Chances?: Compound Sample Spaces pp. M5-7A–M5-26
NC.M2.S-CP.3	Develop and understand independence and conditional probability.	Integrated Math II Textbook	5: Making Informed Decisions	2: Computing Probabilities	2: It All Depends: Conditional Probability pp. M5-99A–M5-112
		Integrated Math II MATHia Software	5: Making Informed Decisions	1: Independence and Conditional Probability	2: Conditional Probability
NC.M2.S-CP.3a	Use a 2-way table to develop understanding of the conditional probability of *A* given *B* (written P(*A*|*B*)) as the likelihood that A will occur given that B has occurred. That is, P(A|B) is the fraction of event B's outcomes that also belong to event A.	Integrated Math II Textbook	5: Making Informed Decisions	2: Computing Probabilities	2: It All Depends: Conditional Probability pp. M5-99A–M5-112
NC.M2.S-CP.3b	Understand that event A is independent from event B if the probability of event A does not change in response to the occurrence of event B. That is P(A|B)=P(A).	Integrated Math II Textbook	5: Making Informed Decisions	2: Computing Probabilities	2: It All Depends: Conditional Probability pp. M5-99A–M5-112

Standard ID	Description	Location	Module	Topic (Textbook)/ Unit (MATHia Software)	Lesson (Textbook) / Workspace (MATHia Software)
NC.M2.S-CP.4	Represent data on two categorical variables by constructing a two-way frequency table of data. Interpret the two-way table as a sample space to calculate conditional, joint and marginal probabilities. Use the table to decide if events are independent.	Integrated Math II Textbook	5: Making Informed Decisions	2: Computing Probabilities	1: Table Talk: Compound Probability for Data Displayed in Two-Way Tables pp. M5-81A–M5-98
		Integrated Math I Textbook	4: Describing Distributions	2: Two-Variable Categorical Data	1: It Takes Two: Creating and Interpreting Frequency Distributions pp. M4–55A–M4-71
					2: Relatively Speaking: Relative Frequency Distribution pp. M4–73A–M4-83
					3: On One Condition . . . or More: Conditional Relative Frequency Distribution pp. M4–85A–M4-94
					4: Data Jam: Drawing Conclusions from Data pp. M4–95A–M4-104
		Integrated Math II MATHia Software	5: Making Informed Decisions	1: Independence and Conditional Probability	3: Understanding Frequency Tables
		Integrated Math I MATHia Software	4: Describing Distributions	2: Categorical Data	1: Using Marginal Frequency Distributions
					2: Creating Marginal Frequency Distributions
					3: Using Marginal Relative Frequency Distributions
					4: Creating Marginal Relative Frequency Distributions
					5: Creating Conditional Relative Frequency Distributions
					6: Using Conditional Relative Frequency Distributions
NC.M2.S-CP.5	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.	Integrated Math II Textbook	5: Making Informed Decisions	2: Computing Probabilities	2: It All Depends: Conditional Probability pp. M5-99A–M5-112
		Integrated Math II MATHia Software	5: Making Informed Decisions	1: Independence and Conditional Probability	4: Recognizing Concepts of Conditional Probability
NC.M2.S-CP.6	Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in context.	Integrated Math II Textbook	5: Making Informed Decisions	2: Computing Probabilities	2: It All Depends: Conditional Probability pp. M5-99A–M5-112
		Integrated Math II MATHia Software	5: Making Informed Decisions	1: Independence and Conditional Probability	2: Conditional Probability

Standard ID	Description	Location	Module	Topic (Textbook)/ Unit (MATHia Software)	Lesson (Textbook) / Workspace (MATHia Software)
NC.M2.S-CP.7	Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in context	Integrated Math II Textbook	5: Making Informed Decisions	1: Independence and Conditional Probability	3: Or?: Compound Probability with Or pp. M5-41A–M5-55
					4: And, Or, and More!: Calculating Compound Probability pp. M5-57A–M5-70
		Integrated Math II MATHia Software	5: Making Informed Decisions	1: Independence and Conditional Probability	5: Calculating Compound Probabilities
NC.M2.S-CP.8	Apply the general Multiplication Rule P(A and B) = P(A)P(B|A) = P(B) P(A|B), and interpret the answer in context. Include the case where A and B are independent: P(A and B) = P(A) P(B).	Integrated Math II Textbook	5: Making Informed Decisions	1: Independence and Conditional Probability	2: And?: Compound Probability with And pp. M5-27A–M5-40
					4: And, Or, and More!: Calculating Compound Probability pp. M5-57A–M5-70