



Math Teachers Press, Inc.

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FLORIDA SUNSHINE STATE STANDARDS CORRELATED TO *MOVING WITH MATH® SUMS FOR HIGH SCHOOL*

		Student Book	Skill Builders
ALGEBRA			
Standard 1: Real and Complex Number Systems			
	Students expand and deepen their understanding of real and complex numbers by comparing expressions and performing arithmetic computations, especially those involving square roots and exponents. They use the properties of real numbers to simplify algebraic expressions and equations, and they convert between different measurement units using dimensional analysis.		
MA.912.A.1.1	Know equivalent forms of real numbers (including integer exponents and radicals, percents, scientific notation, absolute value, rational numbers, irrational numbers).	4,5, 7-9, 12, 53, 54	34, 75
MA.912.A.1.2	Compare real number expressions.	4, 7	
MA.912.A.1.3	Simplify real number expressions using the laws of exponents.	4	
MA.912.A.1.4	Perform operations on real numbers (including integer exponents, radicals, percents, scientific notation, absolute value, rational numbers, and irrational numbers) using multi-step and real-world problems.	10, 11, 15-18	85
MA.912.A.1.5	Use dimensional (unit) analysis to perform conversions between units of measure, including rates.	69-71, 75	
MA.912.A.1.6	Identify the real and imaginary parts of complex numbers and perform basic operations.		
MA.912.A.1.7	Represent complex numbers geometrically.		
MA.912.A.1.8	Use the zero product property of real numbers in a variety of contexts to identify solutions to equations.		
Standard 2: Relations and Functions			

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	Students draw and interpret graphs of relations. They understand the notation and concept of a function, find domains and ranges, and link equations to functions.		
MA.912.A.2.1	Create a graph to represent a real-world situation.	199, 200	
MA.912.A.2.2	Interpret a graph representing a real-world situation.	201	
MA.912.A.2.3	Describe the concept of a function, use function notation, determine whether a given relation is a function, and link equations to functions.	61, 199	
MA.912.A.2.4	Determine the domain and range of a relation.	132, 133	154
MA.912.A.2.5	Graph absolute value equations and inequalities in two variables.	193, 195	
MA.912.A.2.6	Identify and graph common functions (including but not limited to linear, rational, quadratic, cubic, radical, absolute value).	199, 200	
MA.912.A.2.7	Perform operations (addition, subtraction, division and multiplication) of functions algebraically, numerically, and graphically.	200	
MA.912.A.2.8	Determine the composition of functions.	199, 200	
MA.912.A.2.9	Recognize, interpret, and graph functions defined piece-wise, with and without technology.	199, 200, 220	170
MA.912.A.2.10	Describe and graph transformations of functions.	95	
MA.912.A.2.11	Solve problems involving functions and their inverses.	210-212, 220	171
MA.912.A.2.12	Solve problems using direct, inverse, and joint variations.	196-198	
MA.912.A.2.13	Solve real-world problems involving relations and functions.	196-198	186
	Standard 3: Linear Equations and Inequalities		
	Students solve linear equations and inequalities		
MA.912.A.3.1	Solve linear equations in one variable that include simplifying algebraic expressions.	164-166	
MA.912.A.3.2	Identify and apply the distributive, associative, and commutative properties of real numbers and the properties of equality.	160, 174, 175	185
MA.912.A.3.3	Solve literal equations for a specified variable.	213	

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MA.912.A.3.4	Solve and graph simple and compound inequalities in one variable and be able to justify each step in a solution.	168-172	176, 178
MA.912.A.3.5	Symbolically represent and solve multi-step and real-world applications that involve linear equations and inequalities.	164, 170	
MA.912.A.3.6	Solve and graph the solutions of absolute value equations and inequalities with one variable.	193-195	97, 176
MA.912.A.3.7	Rewrite equations of a line into slope-intercept form and standard form.	213	
MA.912.A.3.8	Graph a line given any of the following information: a table of values, the x- and y-intercepts, two points, the slope and a point, the equation of the line in slope-intercept form, standard form, or point-slope form.	207, 208, 214	182
MA.912.A.3.9	Determine the slope, x-intercept, and y intercept of a line given its graph, its equation, or two points on the line.	210-212	171, 181
MA.912.A.3.10	Write an equation of a line given any of the following information: two points on the line, its slope and one point on the line, or its graph. Also, find an equation of a new line parallel to a given line, or perpendicular to a given line, through a given point on the new line.	215-217	
MA.912.A.3.11	Write an equation of a line that models a data set and use the equation or the graph to make predictions. Describe the slope of the line in terms of the data, recognizing that the slope is the rate of change.	217	
MA.912.A.3.12	Graph a linear equation or inequality in two variables with and without graphing technology. Write an equation or inequality represented by a given graph.	213, 217	
MA.912.A.3.13	Use a graph to approximate the solution of a system of linear equations or inequalities in two variables with and without technology.	218	184
MA.912.A.3.14	Solve systems of linear equations and inequalities in two and three variables using graphical, substitution, and elimination methods.	218, 219	184
MA.912.A.3.15	Solve real-world problems involving systems of linear equations and inequalities in two and three variables.	157-165	

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	Standard 4: Polynomials		
	Students perform operations on polynomials. They find factor of polynomials, learning special techniques for factoring quadratics. They understand the relationships among the solutions of polynomial equations, the zeros of a polynomial function, the x-intercepts of a graph, and the factors of a polynomial.		
MA.912.A.4.1	Simplify monomials and monomial expressions using the laws of integral exponents.	179-182	168, 169
MA.912.A.4.2	Add, subtract, and multiply polynomials.	185-190	
MA.912.A.4.3	Factor polynomial expressions.		
MA.912.A.4.4	Divide polynomials by monomials and polynomials with various techniques, including synthetic division.		
MA.912.A.4.5	Graph polynomial functions with and without technology and describe end behavior.		
MA.912.A.4.6	Use theorems of polynomial behavior (including but not limited to the Fundamental Theorem of Algebra, Remainder Theorem, the Rational Root Theorem, Descartes' Rule of Signs, and the Conjugate Root Theorem) to find the zeros of a polynomial function.		
MA.912.A.4.7	Write a polynomial equation for a given set of real and/or complex roots.		
MA.912.A.4.8	Describe the relationships among the solutions of an equation, the zeros of a function, the x-intercepts of a graph, and the factors of a polynomial expression, with and without technology.	208	181
MA.912.A.4.9	Use graphing technology to find approximate solutions for polynomial equations.		
MA.92.A.4.10	Use polynomial equations to solve real-world problems.		
MA.912.A.4.11	Solve a polynomial inequality by examining the graph with and without the use of technology.		
MA.912.A.4.12	Apply the Binomial Theorem.		
	Standard 5: Rational Expressions and Equations		
	Students simplify rational expressions and solve rational equations using what they have learned about factoring polynomials.		
MA.912.A.5.1	Simplify algebraic ratios.	192	

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MA.912.A.5.2	Add, subtract, multiply, and divide rational expressions.	182	
MA.912.A.5.3	Simplify complex fractions.		
MA.912.A.5.4	Solve algebraic proportions.	80, 197	111, 112
MA.912.A.5.5	solve rational equations.	192	
MA.912.A.5.6	Identify removable and non-removable discontinuities and vertical, horizontal, and oblique asymptotes of a graph of a rational function, find the zeros, and graph the function.		
MA.912.A.5.7	Solve real-world problems involving rational equations (mixture, distance, work, interest, and ratio).	202-205	113, 177
	Standard 6: Radical Expressions and Equations		
	Students simplify and perform operations on radical expressions and equations. They also rationalizes square root expressions and understand and use the concepts of negative and rational exponents. They add, subtract, multiply, divide, and simplify radical expressions and expressions with rational exponents. Students will solve radical equations and equations with terms that have rational exponents.		
MA.912.A.6.1	Simplify radical expressions.	183	
MA.912.A.6.2	Add, subtract, multiply and divide radical expressions (square roots and higher).		
MA.912.A.6.3	Simplify expressions using properties of rational exponents.	183	
MA.912.A.6.4	Convert between rational exponent and radical forms of expressions.		
MA.912.A.6.5	Solve equations that contain radical expressions.		
	Standard 7: Quadratic Equations		
	Students draw graphs of quadratic functions. They solve quadratic equations and solve these equations by factoring, completing the square and by using the quadratic formula. They also use graphing calculator to find approximate solutions of quadratic equations.		
MA.912.A..7.1	Graph quadratic equations with and without graphing technology.	220	170

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MA.912.A.7.2	Solve quadratic equations over the real numbers by factoring, and by using the quadratic formula.	220	
MA.912.A.7.3	Solve quadratic equations over the real numbers by completing the square.		
MA.912.A.7.4	Use the discriminant to determine the nature of the roots of a quadratic equation.		
MA.912.A.7.5	Solve quadratic equations over the complex number system.		
MA.912.A.7.6	Identify the axis of symmetry, vertex, domain, range and intercept(s) for a given parabola.	220	170
MA.912.A.7.7	Solve non-linear systems of equations with and without using technology.		
MA.912.A.7.8	Use quadratic equations to solve real-world problems.		
MA.912.A.7.9	Solve optimization problems.		
MA.912.A.7.10	Use graphing technology to find approximate solutions of quadratic equations.		
	Standard 8: Logarithmic and Exponential Functions		
	Students understand the concepts of logarithmic and exponential functions. They graph exponential functions and solve problems of growth and decay. They understand the inverse relationship between exponents and logarithms and use it to prove laws of logarithms and to solve equations. They convert logarithms between bases and simplify logarithmic expressions.		
MA.9.12.A.8.1	Define exponential and logarithmic functions and determine their relationship.		
MA.912.A.8.2	Define and use the properties of logarithms to simplify logarithmic expressions and to find their approximate values.		
MA.912.A.8.3	Graph exponential and logarithmic functions.		
MA.912.A.8.4	Prove laws of logarithms.		
MA.912.A.8.5	Solve logarithmic and exponential equations.		
MA.912.A.8.6	Use the change of base formula.	111	132
MA.912.A.8.7	Solve applications of exponential growth and decay.		

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	Standard 9: Conic Sections		
	Students write equations and draw graphs of conic sections (circle, ellipse, parabola, and hyperbola), thus relating an algebraic representation to a geometric one.		
MA.912.A.9.1	Write the equations of conic sections in standard form and general form, in order to identify the conic section and to find its geometric properties (foci, asymptotes, eccentricity, etc.).		
MA.912.A.9.2	Graph conic sections with and without using graphing technology.		
MA.912.A.9.3	Solve real-world problems involving conic sections.		
	Standard 10: Mathematical Reasoning and Problem Solving		
	In a general sense, all of mathematics is problem solving. In all of their mathematics, students use problem-solving skills; they choose how to approach a problem, they explain their reasoning, and they check their results.		
MA.912.A.10.1	Use a variety of problem-solving strategies, such as drawing a diagram, making a chart, guess-and-check, solving a simpler problem, writing an equation, working backwards, and create a table.	57-61, 64, 65	
MA.912.A.10.2	Decide whether a solution is reasonable in the context of the original situation.	62	102
MA.912.A.10.3	Decide whether a given statement is always, sometimes, or never true (statements involving linear or quadratic expressions, equations or inequalities rational or radical expressions or logarithmic or exponential functions).		
MA.912.A.10.4	Use counterexamples to show that statements are false.		
	GEOMETRY		
	Standard 1: Points, Lines, Angles, and Planes		

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	Students understand geometric concepts, applications, and their representations with coordinate systems. They find lengths and midpoints of line segments, slopes, parallel and perpendicular lines, and equations of lines. Using a compass and straightedge, patty paper, a drawing program or other techniques, students also construct lines and angles, explaining and justifying the processes they use.		
MA.912.G.1.1	Find the lengths and midpoints of line segments in two-dimensional coordinate systems.	210-212	
MA.912.G.1.2	Construct congruent segments and angles, angle bisectors, and parallel and perpendicular lines using a straight edge and compass or a drawing program, explaining and justifying the process used.	91	147
MA.912.G.1.3	Identify and use the relationships between special pairs of angles formed by parallel lines and transversals.	84	155
MA.912.G.1.4	Use coordinate geometry to find slopes, parallel lines, perpendicular lines, and equations of lines.	211, 215, 216	183
	Standard 2: Polygons		
	Students identify and describe polygons (triangles, quadrilaterals, pentagons, hexagons, etc.), using terms such as regular, convex and concave. They find measures of angles, sides, perimeters, and areas of polygons, justifying their methods. They apply transformations to polygons. They relate geometry to algebra by using coordinate geometry to determine transformations. Students use algebraic reasoning to determine congruence, similarity, and symmetry. Students create and verify tessellations of the plane using polygons.		
MA.912.G.2.1	Identify and describe convex, concave, regular, and irregular polygons.	89	135-137
MA.912.G.2.2	Determine the measures of interior and exterior angles of polygons, justifying the method used.		
MA.912.G.2.3	Use properties of congruent and similar polygons to solve mathematical or real-world problems.	93	

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MA.912.G.2.4	Apply transformations (translations, reflections, rotations, dilations, and scale factors) to polygons to determine congruence, similarity, and symmetry. Know that images formed by translations, reflections, and rotations are congruent to the original shape. Create and verify tessellations of the plane using polygons.	92, 95	149
MA.912.G.2.5	Explain the derivation and apply formulas for perimeter and area of polygons (triangles, quadrilaterals, pentagons, etc.).	99, 100, 103-107	118, 119, 124-126
MA.912.G.2.6	Use coordinate geometry to prove properties of congruent, regular and similar polygons, and to perform transformations in the plane.	95	
MA.912.G.2.7	Determine how changes in dimensions affect the perimeter and area of common geometry figures.	103 (T.G.)	129
	Standard 3: Quadrilaterals		
	Students classify and understand relationships among quadrilaterals (rectangle, parallelogram, kite, etc.). They relate geometry to algebra by using coordinate geometry to determine regularity, congruence, and similarity. They use properties of congruent and similar quadrilaterals to solve problems involving lengths and areas, and prove theorems involving quadrilaterals.		
MA.912.G.3.1	Describe, classify, and compare relationships among quadrilaterals including the square, rectangle, rhombus, parallelogram, trapezoid, and kite.	90	
MA.912.G.3.2	Compare and contrast special quadrilaterals on the basis of their properties.	90	
MA.912.G.3.3	Use coordinate geometry to prove properties of congruent, regular and similar quadrilaterals.		
MA.912.G.3.4	Prove theorems involving quadrilaterals.		
	Standard 4: Triangles		

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	Students identify and describe various kinds of triangles (right, acute, scalene, isosceles, etc.). They define and construct altitudes, medians, and bisectors, and triangles congruent to given triangles. They prove that triangles are congruent or similar and use properties of these triangles to solve problems involving lengths and areas. They relate geometry to algebra by using coordinate geometry to determine regularity, congruence, and similarity. They understand and apply the inequality theorems of triangles.		
MA.912.G.4.1	Classify, construct, and describe triangles that are right, acute, obtuse, scalene, isosceles, equilateral, and equiangular.	87, 88	134
MA.912.G.4.2	Define, identify, and construct altitudes, medians, angle bisectors, perpendicular bisectors, orthocenter, centroid, incenter, and circumcenter.		
MA.912.G.4.3	Construct triangles congruent to given triangles.		148
MA.912.G.4.4	Use properties of congruent and similar triangles to solve problems involving lengths and areas.		114
MA.912.G.4.5	Apply theorems involving segments divided proportionally.	80, 81	111-115
MA.912.G.4.6	Prove that triangles are congruent or similar and use the concept of corresponding parts of congruent triangles.	93	150
MA.912.G.4.7	Apply the inequality theorems: triangle inequality, inequality in one triangle, and the Hinge Theorem.		
MA.912.G.4.8	Use coordinate geometry to prove properties of congruent, regular, and similar triangles.		
	Standard 5: Right Triangles		
	Students apply the Pythagorean Theorem to solving problems, including those involving the altitudes of right triangles and triangles with special angle relationships. Students use special right triangles to solve problems using the properties of triangles.		
MA.912.G.5.1	Prove and apply the Pythagorean Theorem and its converse.	96, 97	146

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MA.912.G.5.2	State and apply the relationships that exist when the altitude is drawn to the hypotenuse of a right triangle.	96, 97	146
MA.912.G.5.3	Use special right triangles ($30^\circ - 60^\circ - 90^\circ$ and $45^\circ - 45^\circ - 90^\circ$) to solve problems.		
MA.912.G.5.4	Solve real-world problems involving right triangles.	96, 97	114
	Standard 6: Circles		
	Students define and understand ideas related to circles (radius, tangent, chord, etc.). They perform constructions and prove theorems related to circles. They find measures of arcs and angles related to them, as well as measures of circumference and area. They relate geometry to algebra by finding the equation of a circle in the coordinate plane.		
MA.912.G.6.1	Determine the center of a given circle. Given three points not on a line, construct the circle that passes through them. Construct tangents to circles. Circumscribe and inscribe circles about and within triangles and regular polygons.		
MA.912.G.6.2	Define and identify: circumference, radius, diameter, arc, arc length, chord, secant, tangent and concentric circles.	83, 101	120, 121
MA.912.G.6.3	Prove theorems related to circles, including related angles, chords, tangents, and secants.		
MA.912.G.6.4	Determine and use measures of arcs and related angles (central, inscribed, and intersections of secants and tangents).		
MA.912.G.6.5	Solve real-world problems using measures of circumference, arc length, and areas of circles and sectors.		121
MA.912.G.6.6	Given the center and the radius, find the equation of a circle in the coordinate plane or given the equation of a circle in center-radius form, state the center and the radius of the circle.		
MA.912.G.6.7	Given the equation of a circle in center-radius form or given the center and the radius of a circle, sketch the graph of the circle.		
	Standard 7: Polyhedra and Other Solids		

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	Students describe and make regular and nonregular polyhedra (cube, pyramid, tetrahedron, octahedron, etc.). They explore relationships among the faces, edges and vertices of polyhedra. They describe sets of points on spheres, using terms such as great circle. They describe symmetries of solids and understand the properties of congruent and similar solids.		
MA.912.G.7.1	Describe and make regular, non-regular, and oblique polyhedra and sketch the net for a given polyhedron and vice versa.	116	139
MA.912.G.7.2	Describe the relationships between the faces, edges, and vertices of polyhedra.		132
MA.912.G.7.3	Identify, sketch, and determine areas and/or perimeters of cross sections of three-dimensional solids.		
MA.912.G.7.4	Identify chords, tangents, radii, and great circles of spheres.		
MA.912.G.7.5	Explain and use formulas for lateral area, surface area, and volume of three-dimensional solids.	109-111, 116	130, 139
MA.912.G.7.6	Identify and use properties of congruent and similar three-dimensional solids.		
MA.912.G.7.7	Determine how changes in dimensions affect the surface area and volume of common three-dimensional geometric solids.	117, 118	
	Standard 8: Mathematical Reasoning and Problem Solving		
	In a general sense, mathematics is problem solving. In all mathematics, students use problem-solving skills: they choose how to approach a problem, they explain their reasoning, and they check their results. At this level, students apply these skills to make conjectures, using axioms and theorems, constructing logical arguments, and writing geometric proofs. They also learn about inductive and deductive reasoning and how to use counterexamples to show that a general statement is false.		
MA.912.G.8.1	Analyze the structure of Euclidean geometry as an axiomatic system. Distinguish between undefined terms, definitions, postulates and theorems.		

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MA.912.G.8.2	Use a variety of problem-solving strategies, such as drawing a diagram, making a chart, guess-and-check, solving a simpler problem, writing an equation, and working backwards.	99 (T.G.)	
MA.912.G.8.3	Determine whether a solution is reasonable in the context of the original situation.	107 (T.G.), 115	
MA.912.G.8.4	Make conjectures with justifications about geometric ideas. Distinguish between information that supports a conjecture and the proof of a conjecture.	84, 101	
MA.912.G.8.5	Write geometric proofs, including proofs by contradiction and proofs involving coordinate geometry. Use and compare a variety of ways to present deductive proofs, such as flow charts, paragraphs, two-column and indirect proofs.		
MA.912.G.8.6	Perform basic constructions using straightedge and compass, and/or drawing programs describing and justifying the procedures used. Distinguish between sketching, constructing and drawing geometric figures.		147