

**FORMAT FOR CORRELATION TO THE GEORGIA PERFORMANCE STANDARDS**

**Subject Area:** Mathematics 2                      **State-Funded Course:** \_\_\_\_\_

**Textbook Title:** Algebra II Mathematics in Context

**Publisher:** Cord Communications

*The GPSs for grades K-12 Science and 9-12 Mathematics may be accessed on-line at: <http://www.georgiastandards.org/>.*

<b>Standard</b> (Cite Number)	<b>Standard</b> (Cite specific standard)	<b>Where Taught</b> (If print component, cite page number; if non-print, cite appropriate location.)
<b>MM2N1</b>	<b>Students will represent and operate with complex numbers.</b>	<b>Lesson 5.5</b>
MM2N1a	Write square roots of negative numbers in imaginary form.	223–225
MM2N1b	Write complex numbers in the form $a + bi$ .	223–225
MM2N1c	Add, subtract, multiply, and divide complex numbers.	223–225
MM2N1d	Simplify expressions involving complex numbers.	223–225
<b>MM2A1</b>	<b>Students will investigate step and piecewise functions, including greatest integer and absolute value functions.</b>	<b>Chapter 4</b>
MM2A1a	Write absolute value functions as piecewise functions.	19
MM2A1b	Investigate and explain characteristics of a variety of piecewise functions including domain, range, vertex, axis of symmetry, zeros, intercepts, extrema, points of discontinuity, intervals over which the function is constant, intervals of increase and decrease, and rates of change.	172–175, 245, 432
MM2A1c	Solve absolute value equations and inequalities analytically, graphically, and by using appropriate technology.	17–20, 73–75, 173
<b>MM2A2</b>	<b>Students will explore exponential functions.</b>	<b>Chapter 5, Chapter 8</b>
MM2A2a	Extend properties of exponents to include all integer exponents.	202–204
MM2A2b	Investigate and explain characteristics of exponential functions, including domain and range, asymptotes, zeros, intercepts, intervals of increase and decrease, rates of change, and end behavior.	342–345, 365
MM2A2c	Graph functions as transformations of $f(x) = a^x$ .	342–345
MM2A2d	Solve simple exponential equations and inequalities analytically, graphically, and by using appropriate technology.	202–204, 207–209, 213–214, 218–222, 342–346; Supplement 40

MM2A2e	Understand and use basic exponential functions as models of real phenomena.	Chapter 8 Math Applications
MM2A2f	Understand and recognize geometric sequences as exponential functions with domains that are sets of whole numbers.	487–489, 493–494
MM2A2g	Interpret the constant ratio in a geometric sequence as the base of the associated exponential function.	493–494
<b>MM2A3</b>	<b>Students will analyze quadratic functions in the forms <math>f(x) = ax^2 + bx + c</math> and <math>f(x) = a(x - h)^2 + k</math>.</b>	<b>Chapter 6</b>
MM2A3a	Convert between standard and vertex form.	244
MM2A3b	Graph quadratic functions as transformations of the function $f(x) = x^2$ .	179–182
MM2A3c	Investigate and explain characteristics of quadratic functions, including domain, range, vertex, axis of symmetry, zeros, intercepts, extrema, intervals of increase and decrease, and rates of change.	244–246
MM2A3d	Explore arithmetic series and various ways of computing their sums.	481–484
MM2A3e	Explore sequences of partial sums of arithmetic series as examples of quadratic functions.	Supplement 52
<b>MM2A4</b>	<b>Students will solve quadratic equations and inequalities in one variable.</b>	<b>Chapter 6</b>
MM2A4a	Solve equations graphically using appropriate technology.	245,
MM2A4b	Find real and complex solutions of equations by factoring, taking square roots, and applying the quadratic formula.	249–250, 253–256, 259–262, 265–267, 270–271
MM2A4c	Analyze the nature of roots using technology and using the discriminant.	266–267
MM2A4d	Solve quadratic inequalities both graphically and algebraically, and describe the solutions using linear inequalities.	Supplement 8
<b>MM2A5</b>	<b>Students will explore inverses of functions.</b>	<b>Chapter 4</b>
MM2A5a	Discuss the characteristics of functions and their inverses, including one-to-oneness, domain, and range.	168–169
MM2A5b	Determine inverses of linear, quadratic, and power functions and functions of the form $f(x) = \frac{a}{x}$ , including the use of restricted domains.	168–169
MM2A5c	Explore the graphs of functions and their inverses.	168–171
MM2A5d	Use composition to verify that functions are inverses of each other.	168–171
<b>MM2G1</b>	<b>Students will identify and use special right triangles.</b>	<b>Supplement</b>
MM2G1a	Determine the lengths of sides of 30°-60°-90° triangles.	Supplement 1–4
MM2G1b	Determine the lengths of sides of 45°-45°-90° triangles.	Supplement 1–4
<b>MM2G2</b>	<b>Students will define and apply sine, cosine, and tangent ratios to right triangles.</b>	<b>Chapter 12</b>
MM2G2a	Discover the relationship of the trigonometric ratios for similar triangles.	Supplement 520–526

MM2G2b	Explain the relationship between the trigonometric ratios of complementary angles.	Supplement 520–526
MM2G2c	Solve application problems using the trigonometric ratios.	Chapter 12 Math Aps
<b>MM2G3</b>	<b>Students will understand the properties of circles.</b>	<b>311–313, Supplement</b>
MM2G3a	Understand and use properties of chords, tangents, and secants as an application of triangle similarity.	Supplement 9–25, 33–39
MM2G3b	Understand and use properties of central, inscribed, and related angles.	Supplement: 26–32
MM2G3c	Use the properties of circles to solve problems involving the length of an arc and the area of a sector.	Supplement: 17–25
MM2G3d	Justify measurements and relationships in circles using geometric and algebraic properties.	Supplement: 9–39
<b>MM2G4</b>	<b>Students will find and compare the measures of spheres.</b>	<b>Supplement</b>
MM2G4a	Use and apply surface area and volume of a sphere.	Supplement: 41–46
MM2G4b	Determine the effect on surface area and volume of changing the radius or diameter of a sphere.	Supplement: 47–51
<b>MM2D1</b>	<b>Using sample data, students will make informal inferences about population means and standard deviations.</b>	<b>Supplement</b>
MM2D1a	Pose a question and collect sample data from at least two different populations.	Supplement 53–54
MM2D1b	Understand and calculate the means and standard deviations of sets of data.	Supplement 55–60
MM2D1c	Use means and standard deviations to compare data sets.	Supplement 55–60
MM2D1d	Compare the means and standard deviations of random samples with the corresponding population parameters. Observe that the different sample means vary from one sample to the next. Observe that the distribution of the sample means has less variability than the population distribution.	Supplement 61–66
<b>MM2D2</b>	<b>Students will determine an algebraic model to quantify the association between two quantitative variables.</b>	<b>Supplement 5–7, 53–66</b>
MM2D2a	Gather and plot data that can be modeled with linear and quadratic functions.	36–41, Supplement 53–66
MM2D2b	Examine the issues of curve fitting by finding good linear fits to data using simple methods such as the median–median line and “eyeballing.”	Supplement 5–6
MM2D1c	Understand and apply the processes of linear and quadratic regression for curve fitting using appropriate technology.	36–41, 274
MM2D2d	Investigate issues that arise when using data to explore the relationship between two variables, including confusion between correlation and causation.	Supplement 7
<b>MM2P1</b>	<b>Students will solve problems (using appropriate technology).</b>	<b>Used throughout especially in Math Applications</b>
MM2P1a	Build new mathematical knowledge through problem solving.	Used throughout especially in Math Applications

MM2P1b	Solve problems that arise in mathematics and in other contexts.	Used throughout especially in Math Applications
MM2P1c	Apply and adapt a variety of appropriate strategies to solve problems.	Used throughout especially in Math Applications and Problem Solving feature
MM2P1d	Monitor and reflect on the process of mathematical problem solving.	Used throughout especially in Problem Solving feature
<b>MM2P2</b>	<b>Students will reason and evaluate mathematical arguments.</b>	<b>Used throughout</b>
MM2P2a	Recognize reasoning and proof as fundamental aspects of mathematics.	Used throughout
MM2P2b	Make and investigate mathematical conjectures.	Used throughout
MM2P2c	Develop and evaluate mathematical arguments and proofs.	Used throughout
MM2P2d	Select and use various types of reasoning and methods of proof.	Used throughout
<b>MM2P3</b>	<b>Students will communicate mathematically.</b>	<b>Used throughout</b>
MM2P3a	Organize and consolidate their mathematical thinking through communication.	Used throughout especially Critical Thinking and Think and Discuss questions
MM2P3b	Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	Used throughout especially Critical Thinking and Think and Discuss questions
MM2P3c	Analyze and evaluate the mathematical thinking and strategies of others.	Used throughout especially Critical Thinking and Think and Discuss questions
MM2P3d	Use the language of mathematics to express mathematical ideas precisely.	Used throughout especially Critical Thinking and Think and Discuss questions
<b>MM2P4</b>	<b>Students will make connections among mathematical ideas and to other disciplines.</b>	<b>Used throughout especially in Math Applications</b>
MM2P4a	Recognize and use connections among mathematical ideas.	Used throughout especially in Math Applications
MM2P4b	Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	Used throughout especially in Math Applications
MM2P4c	Recognize and apply mathematics in contexts outside of mathematics.	Used throughout especially in Math Applications
<b>MM2P5</b>	<b>Students will represent mathematics in multiple ways.</b>	<b>Used throughout</b>
MM2P5a	Create and use representations to organize, record, and communicate mathematical ideas.	Used throughout
MM2P5b	Select, apply, and translate among mathematical representations to solve problems.	Used throughout
MM2P5c	Use representations to model and interpret physical, social, and mathematical phenomena.	Used throughout

