

**The
University of
Chicago
School
Mathematics
Project**



Algebra



Correlated to
Michigan
High School
Mathematics
Content Standards and
Expectations



Quantitative Literacy and Logic
Algebra and Functions



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Michigan High School Content Standards and Expectations	Wright Group/McGraw-Hill Algebra ©2008
Strand 1: Quantitative Literacy and Logic	
Standard L1: Reasoning About Numbers, Systems, and Quantitative Situations	
L1.1 Number Systems and Number Sense	
L1.1.1 Know the different properties that hold in different number systems and recognize that the applicable properties change in the transition from the positive integers to all integers, to the rational numbers, and to the real numbers.	SE: 16, 66–67, 85, 87, 106, 108, 109, 113, 114, 115, 157, 162, 252, 253, 405 TE: 16, 66–67, 85, 87, 106, 108, 109, 113, 114, 115, 157, 162, 252, 253, 405
L1.1.2 Explain why the multiplicative inverse of a number has the same sign as the number, while the additive inverse of a number has the opposite sign.	SE: 109, 116–117 TE: 109, 116–117
L1.1.3 Explain how the properties of associativity, commutativity, and distributivity, as well as identity and inverse elements, are used in arithmetic and algebraic calculations.	SE: 9–11, 66–70, 108–110 TE: 9–11, 66–70, 108–110 LM: 1-1A, 1-1B, 2-1A, 2-1B, 2-7A, 2-7B RM: 20, 33 AR: 13–20
L1.1.4 Describe the reasons for the different effects of multiplication by, or exponentiation of, a positive number by a number less than 0, a number between 0 and 1, and a number greater than 1.	SE: 112–119, 398–403 TE: 112–119, 398–403 LM: 2-8A, 2-8B, 7-1A, 7-1B RM: 34, 98 AR: 13–20, 89–100
L1.1.5 Justify numerical relationships ³	SE: 817–820 TE: 817–820 LM: 13-7A, 13-7B RM: 208 AR: 170–175
L1.1.6 Explain the importance of the irrational numbers and in basic right triangle trigonometry, and the importance of because of its role in circle relationships.	SE: 817–820 TE: 817–820 LM: 13-7A, 13-7B RM: 208 AR: 170–175
L1.2 Representations and Relationships	

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L1.2.1 Use mathematical symbols to represent quantitative relationships and situations.	SE: 155–160, 489, 493, 582–586, 629–633, 691–695 TE: 155–160, 489, 493, 582–586, 629–633, 691–695 LM: 3-6A, 3-6B, 10-1A, 10-1B, 10-8A, 10-8B, 11-7A, 11-7B RM: 41, 146, 156, 173 AR: 26–33, 132–139, 146–153
L1.2.2 Interpret representations that reflect absolute value relationships in such contexts as error tolerance.	SE: 42–46, 234–239 TE: 42–46, 234–239 LM: 1-6A, 1-6B, 4-9A, 4-9B RM: 17, 56, 57, 58 AR: 3–10, 44–51
L1.2.3 Use vectors to represent quantities that have magnitude and direction, interpret direction and magnitude of a vector numerically, and calculate the sum and difference of two vectors.	SE: 616–620 TE: 616–620 LM: 10-6A, 10-6B RM: 153, 154 AR: 132–139
L1.2.4 Organize and summarize a data set in a table, plot, chart, or spreadsheet; find patterns in a display of data; understand and critique data displays in the media.	SE: 47–53 TE: 47–53 LM: 1-7A, 1-7B RM: 18, 19 AR: 3–10
L1.3 Counting and Probabilistic Reasoning	
L1.3.1 Describe, explain, and apply various counting techniques; relate combinations to Pascal’s triangle; know when to use each technique.	SE: 458–462 TE: 458–462 LM: 8-1A, 8-1B RM: 115 AR: 103–108
L1.3.2 Define and interpret commonly used expressions of probability.	SE: 280–287 TE: 280–287 LM: 5-6A, 5-6B RM: 67, 68 AR: 57–64
L1.3.3 Recognize and explain common probability misconceptions such as “hot streaks” and “being due.”	SE: 280–287, 296–300 TE: 280–287, 296–300 LM: 5-6A, 5-6B, 5-8A, 5-8B RM: 67, 68, 71, 72 AR: 57–64
Standard L2: Calculation, Algorithms, and Estimation	

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L2.1 Calculation Using Real and Complex Numbers	
L2.1.1 Explain the meaning and uses of weighted averages.	Lesson 8-4 in Wright Group/McGraw-Hill <i>Advanced Algebra</i> may be extended to cover this standard. See: SE: 537–544 TE: 537–544
L2.1.2 Calculate fluently with numerical expressions involving exponents; use the rules of exponents; evaluate numerical expressions involving rational and negative exponents; transition easily between roots and exponents.	SE: 398–403, 474–479 TE: 398–403, 474–479 LM: 7-1A, 7-1B, 8-4A, 8-4B RM: 118, 119 AR: 89–100, 103–108
L2.1.3 Explain the exponential relationship between a number and its base 10 logarithm and use it to relate rules of logarithms to those of exponents in expressions involving numbers.	SE: 464–468, 469–472 TE: 464–468, 469–472 LM: 8-2A, 8-2B, 8-3A, 8-3B RM: 116, 117 AR: 103–108
L2.1.4 Know that the complex number i is one of two solutions to $x^2 = -1$.	SE: 797 TE: 797
L2.1.5 Add, subtract, and multiply complex numbers; use conjugates to simplify quotients of complex numbers.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 428–430 TE: 428–430
L2.2 Sequences and Iteration	
L2.2.1 Find the n th term in arithmetic, geometric, or other simple sequences.	SE: 15–18 TE: 15–18 LM: 1-2A, 1-2B RM: 9 AR: 3–10
L2.2.2 Compute sums of finite arithmetic and geometric sequences.	SE: 15–18 TE: 15–18 LM: 1-2A, 1-2B RM: 9 AR: 3–10

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L2.2.3 Use iterative processes in such examples as computing compound interest or applying approximation procedures.	SE: 398–403 TE: 398–403 LM: 7-1A, 7-1B RM: 98, 99 AR: 89–100
L2.3 Measurement Units, Calculations, and Scales	
L2.3.1 Convert units of measurement within and between systems; explain how arithmetic operations on measurements affect units, and carry units through calculations correctly.	SE: 269–271 TE: 269–271 LM: 5-4A, 5-4B RM: 64 AR: 57–64
L2.3.2 Describe and interpret logarithmic relationships in such contexts as the Richter scale, the pH scale, or decibel measurements; solve applied problems.	SE: 447 TE: 447
L2.4 Understanding Error	
L2.4.1 Determine what degree of accuracy is reasonable for measurements in a given situation; express accuracy through use of significant digits, error tolerance, or percent of error; describe how errors in measurements are magnified by computation; recognize accumulated error in applied situations.	This skill is taught in Wright Group/McGraw-Hill <i>Pre-Transition Mathematics</i> . SE: 78 TE: 78
L2.4.2 Describe and explain round-off error, rounding, and truncating.	SE: 90–95 TE: 90–95 LM: 2-5A, 2-5B RM: 11–18 AR: 44, 45
L2.4.3 Know the meaning of and interpret statistical significance, margin of error, and confidence level.	SE: 47–53 TE: 47–53 LM: 1-7A, 1-7B RM: 18, 19 AR: 3–10
Standard L3: Mathematical Reasoning, Logic, and Proof	
L3.1 Mathematical Reasoning	
L3.1.1 Distinguish between inductive and deductive reasoning, identifying and providing examples of each.	SE: 512–513, 776–777, 778–783 TE: 512–513, 776–777, 778–783 LM: 13-1A, 13-1B RM: 196, 197, 198

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L3.1.2 Differentiate between statistical arguments (statements verified empirically using examples or data) and logical arguments based on the rules of logic.	SE: 512–515, 778–782, 784–787, 788–793, 818–819 TE: 512–515, 778–782, 784–787, 788–493, 818–819 LM: 13-1A, 13-1B, 13-2A, 13-2B, 13-3A, 13-3B RM: 196, 197, 198, 199, 200
L3.1.3 Define and explain the roles of axioms (postulates), definitions, theorems, counterexamples, and proofs in the logical structure of mathematics. Identify and give examples of each.	SE: 25, 459–460, 492, 512–515, 749–752, 782, 788–793, 797, 802–807, 828 TE: 25, 459–460, 492, 512–515, 749–752, 782, 788–793, 797, 802–807, 828 LM: 13-3A, 13-3B, 13-5A, 13-5B RM: 200
L3.2 Language and Laws of Logic	
L3.2.1 Know and use the terms of basic logic.	SE: 778–782, 784–787 TE: 778–782, 784–787 LM: 13-1A, 13-1B, 13-2A, 13-2B RM: 196, 197, 198, 199 AR: 170–175
L3.2.2 Use the connectives “not,” “and,” “or,” and “if..., then,” in mathematical and everyday settings. Know the truth table of each connective and how to logically negate statements involving these connectives.	SE: 778–782, 784–787 TE: 778–782, 784–787 LM: 13-1A, 13-1B, 13-2A, 13-2B RM: 196, 197, 198, 199 AR: 170–175
L3.2.3 Use the quantifiers “there exists” and “all” in mathematical and everyday settings and know how to logically negate statements involving them.	SE: 666 TE: 666
L3.2.4 Write the converse, inverse, and contrapositive of an “if..., then...” statement. Use the fact, in mathematical and everyday settings, that the contrapositive is logically equivalent to the original, while the inverse and converse are not.	SE: 784–787 TE: 784–787 LM: 13-2A, 13-2B RM: 199 AR: 170–175
L3.3 Proof	
L3.3.1 Know the basic structure for the proof of an “if..., then...” statement (assuming the hypothesis and ending with the conclusion) and that proving the contrapositive is equivalent.	SE: 778–782 TE: 778–782 LM: 13-1A, 13-1B RM: 196, 197 AR: 170–175

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L3.3.2 Construct proofs by contradiction. Use counterexamples, when appropriate, to disprove a statement.	SE: 23, 512–515, 779 TE: 23, 512–515, 779 LM: 8-9A, 8-9B
L3.3.3 Explain the difference between a necessary and a sufficient condition within the statement of a theorem. Determine the correct conclusions based on interpreting a theorem in which necessary or sufficient conditions in the theorem or hypothesis are satisfied.	SE: 749–752 TE: 749–752
*L1.2.5 Read and interpret representations from various technological sources, such as contour or isobar diagrams.	This skill is taught in Wright Group/McGraw-Hill <i>Geometry</i> . SE: 584, 708 TE: 584, 708
*L2.1.7 Understand the mathematical bases for the differences among voting procedures.	
*L2.2.4 Compute sums of infinite geometric sequences.	Wright Group/McGraw-Hill <i>Advanced Algebra</i> covers the sums of finite geometric sequences. SE: 876–879 TE: 876–879
Strand 2: Algebra and Functions	
Standard A1: Expressions, Equations, and Inequalities	
A1.1 Construction, Interpretation, and Manipulation of Expressions	
A1.1.1 Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.	SE: 6–11 TE: 6–11 LM: 1-1A, 1-1B RM: 8 AR: 3–10
A1.1.2 Know the definitions and properties of exponents and roots transition fluently between them, and apply them in algebraic expressions.	SE: 488–495 TE: 488–495 LM: 8-6A, 8-6B RM: 121 AR: 103–108
A1.1.3 Factor algebraic expressions using, for example, greatest common factor, grouping, and the special product identities.	SE: 15–16, 675–676 TE: 15–16, 675–676

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A1.1.4 Add, subtract, multiply, and simplify polynomials and rational expressions.	SE: 656–661, 663–667, 669–673 TE: 656–661, 663–667, 669–673 LM: 11-1A, 11-1B, 11-2A, 11-2B, 11-3A, 11-3B RM: 160, 162, 164 AR: 146–153
A1.1.5 Divide a polynomial by a monomial.	SE: 703 TE: 703
A1.1.6 Transform exponential and logarithmic expressions into equivalent forms using the properties of exponents and logarithms, including the inverse relationship between exponents and logarithms.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 608–612, 643–647 TE: 608–612, 643–647
A1.2 Solutions of Equations and Inequalities	
A1.2.1 Write equations and inequalities with one or two variables to represent mathematical or applied situations, and solve.	SE: 128–129, 130–134, 135–138, 139–143, 144–148, 156–161, 162–166, 182–187, 188–195, 202–209, 210–215 TE: 128–129, 130–134, 135–138, 139–143, 144–148, 156–161, 162–166, 182–187, 188–195, 202–209, 210–215 LM: 3-1A, 3-1B, 3-2A, 3-2B, 3-3A, 3-3B, 3-4A, 3-4B, 3-6A, 3-6B, 3-7A, 3-7B, 4-1A, 4-1B, 4-2A, 4-2B, 4-4A, 4-4B RM: 35, 36, 37, 38, 39, 41, 42, 43, 45, 46, 47, 49, 50, 51 AR: 26–33, 44–51
A1.2.2 Associate a given equation with a function whose zeros are the solutions of the equation.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 436–437 TE: 436–437
A1.2.3 Solve linear and quadratic equations and inequalities including systems of up to three linear equations with three unknowns. Justify steps in the solution, and apply the quadratic formula appropriately.	SE: 580–581, 582–588, 589–593, 594–599, 601–606, 608–614, 616–620, 635–638, 640–643 TE: 580–581, 582–588, 589–593, 594–599, 601–606, 608–614, 616–620, 635–638, 640–643 LM: 10-1A, 10-1B, 10-2A, 10-2B, 10-3A, 10-3B, 10-4A, 10-4B, 10-5A, 10-5B, 10-6A, 10-6B, 10-9A, 10-9B, 10-10A, 10-10B RM: 146, 147, 148, 149, 150, 151, 152, 153, 154, 157, 158, 159 AR: 132–139

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A1.2.4 Solve absolute value equations and inequalities, and justify steps in the solution.	SE: 234–239 TE: 234–239 LM: 4-9A, 4-9B RM: 56, 57, 58 AR: 44–51
A1.2.5 Solve polynomial equations and equations involving rational expressions, and justify steps in the solution.	SE: 761–766 TE: 761–766 LM: 12-8A, 12-8B RM: 195 AR: 159–164
A1.2.6 Solve power equations and equations including radical expressions, justify steps in the solution, and explain how extraneous solutions may arise.	SE: 497–503 TE: 497–503 LM: 8-7A, 8-7B RM: 121, 122 AR: 103–108
A1.2.7 Solve exponential and logarithmic equations, and justify steps in the solution.	SE: 411–418, 419–424 TE: 411–418, 419–424 LM: 7-3A, 7-3B RM: 102, 103, 104 AR: 89–100
A1.2.8 Solve an equation involving several variables (with numerical or letter coefficients) for a designated variable. Justify steps in the solution.	SE: 580–581, 582–588, 589–593, 594–599, 601–606, 608–614, 616–620, 640–643 TE: 580–581, 582–588, 589–593, 594–599, 601–606, 608–614, 616–620, 640–643 LM: 10-1A, 10-1B, 10-2A, 10-2B, 10-3A, 10-3B, 10-4A, 10-4B, 10-5A, 10-5B, 10-6A, 10-6B, 10-10A, 10-10B RM: 146, 147, 148, 149, 150, 151, 152, 153, 154, 159 AR: 132–139
A1.2.9 Know common formulas and apply appropriately in contextual situations.	SE: 11, 18, 32, 222, 272, 296, 307, 400, 485, 486, 513, 537, 572, 606, 634, 735, 753, 766, 800, 823 TE: 11, 18, 32, 222, 272, 296, 307, 400, 485, 486, 513, 537, 572, 606, 634, 735, 753, 766, 800, 823
A1.2.10 Use special values of the inverse trigonometric functions to solve trigonometric equations over specific intervals.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 670–671 TE: 670–671
Standard A2: Functions	

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A2.1 Definitions, Representations, and Attributes Of Functions	
A2.1.1 Determine whether a relationship (given in contextual, symbolic, tabular, or graphical form) is a function and identify its domain and range.	SE: 425–431, 432–437 TE: 425–431, 432–437 LM: 7-5A, 7-5B, 7-6A, 7-6B RM: 108, 109, 110, 111, 112 AR: 89–100
A2.1.2 Read, interpret, and use function notation and evaluate a function at a value in its domain.	SE: 432–437 TE: 432–437 LM: 7-6A, 7-6B RM: 111, 112 AR: 89–100
A2.1.3 Represent functions in symbols, graphs, tables, diagrams, or words and translate among representations.	SE: 425–431, 432–437, 439–446 TE: 425–431, 432–437, 439–446 LM: 7-5A, 7-5B, 7-6A, 7-6B, 7-7A, 7-7B RM: 108, 109, 110, 111, 112, 113, 114 AR: 89–100
A2.1.4 Recognize that functions may be defined by different expressions over different intervals of their domains; such functions are piecewise-defined.	SE: 432–437 TE: 432–437 LM: 7-6A, 7-6B RM: 111, 112 AR: 89–100
A2.1.5 Recognize that functions may be defined recursively. Compute values of and graph simple recursively defined functions.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 189–192, 479–480 TE: 189–192, 479–480
A2.1.6 Identify the zeros of a function, the intervals where the values of a function are positive or negative, and describe the behavior of a function as x approaches positive or negative infinity, given the symbolic and graphical representations.	SE: 425–431 TE: 425–431 LM: 7-5A, 7-5B RM: 108, 109, 110 AR: 89–100
A2.1.7 Identify and interpret the key features of a function from its graph or its formula(e).	SE: 425–431, 432–437, 439–446 TE: 425–431, 432–437, 439–446 LM: 7-5A, 7-5B, 7-6A, 7-6B, 7-7A, 7-7B RM: 108, 109, 110, 111, 112, 113, 114 AR: 89–100
A2.2 Operations and Transformations	

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A2.2.1 Combine functions by addition, subtraction, multiplication, and division.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 732–733 TE: 732–733
A2.2.2 Apply given transformations to basic functions and represent symbolically.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 386–390 TE: 386–390
A2.2.3 Recognize whether a function (given in tabular or graphical form) has an inverse and recognize simple inverse pairs.	SE: 526–531 TE: 526–531 LM: 9-1A, 9-1B RM: 129, 130, 132 AR: 114–121
A2.3 Representations of Functions	
A2.3.1 Identify a function as a member of a family of functions based on its symbolic or graphical representation; recognize that different families of functions have different asymptotic behavior.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 150–153, 374, 393–398, 580–583, 663–664 TE: 150–153, 374, 393–398, 580–583, 663–664
A2.3.2 Describe the tabular pattern associated with functions having constant rate of change (linear); or variable rates of change.	SE: 326–332 TE: 326–332 LM: 6-1A, 6-1B RM: 78, 79, 80, 81 AR: 70–77
A2.3.3 Write the general symbolic forms that characterize each family of functions.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 150–153, 374, 393–398, 580–583, 663–664 TE: 150–153, 374, 393–398, 580–583, 663–664
A2.4 Models of Real-world Situations Using Families of Functions	
A2.4.1 Identify the family of function best suited for modeling a given real-world situation.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 150–151, 395–398, 580–583 TE: 150–151, 395–398, 580–583
A2.4.2 Adapt the general symbolic form of a function to one that fits the specification of a given situation by using the information to replace arbitrary constants with numbers.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 169–172, 375–376, 393–398, 580–583, 664 TE: 169–172, 375–376, 393–398, 580–583, 664

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A2.4.3 Using the adapted general symbolic form, draw reasonable conclusions about the situation being modeled.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 375–376, 393–398, 580–583 TE: 375–376, 393–398, 580–583
Standard A3: Families of Functions	
A3.1 Lines and Linear Functions	
A3.1.1 Write the symbolic forms of linear functions (standard, point-slope, and slope-intercept) given appropriate information, and convert between forms.	SE: 333–340, 341–347, 348–355, 356–360, 361–367, 432–437 TE: 333–340, 341–347, 348–355, 356–360, 361–367, 432–437 LM: 6-2A, 6-2B, 6-3A, 6-3B, 6-4A, 6-4B, 6-5A, 6-5B, 6-6A, 6-6B, 7-6A, 7-6B RM: 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 111, 112 AR: 70–77, 89–100
A3.1.2 Graph lines (including those of the form $x = h$ and $y = k$) given appropriate information.	SE: 333–340, 341–347, 348–355, 356–360, 361–367, 432–437 TE: 333–340, 341–347, 348–355, 356–360, 361–367, 432–437 LM: 6-2A, 6-2B, 6-3A, 6-3B, 6-4A, 6-4B, 6-5A, 6-5B, 6-6A, 6-6B, 7-6A, 7-6B RM: 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 111, 112 AR: 70–77, 89–100
A3.1.3 Relate the coefficients in a linear function to the slope and x- and y-intercepts of its graph.	SE: 333–340, 341–347, 348–355, 356–360, 361–367 TE: 333–340, 341–347, 348–355, 356–360, 361–367 LM: 6-2A, 6-2B, 6-3A, 6-3B, 6-4A, 6-4B, 6-5A, 6-5B, 6-6A, 6-6B RM: 82, 83, 84, 85, 86, 87, 88, 89, 90, 91 AR: 70–77
A3.1.4 Find an equation of the line parallel or perpendicular to given line, through a given point; understand and use the facts that non-vertical parallel lines have equal slopes, and that non-vertical perpendicular lines have slopes that multiply to give -1.	SE: 616–620 TE: 616–620 LM: 10-6A, 10-6B RM: 153, 154 AR: 132–139
A3.2 Exponential and Logarithmic Functions	

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A3.2.1 Write the symbolic form and sketch the graph of an exponential function given appropriate information.	SE: 398–403, 404–410, 411–418, 419–423 TE: 398–403, 404–410, 411–418, 419–423 LM: 7-1A, 7-1B, 7-2A, 7-2B, 7-3A, 7-3B, 7-4A, 7-4B RM: 98, 99, 100, 101, 102, 103, 104, 105, 106, 107 AR: 89–100
A3.2.2 Interpret the symbolic forms and recognize the graphs of exponential and logarithmic functions; recognize the logarithmic function as the inverse of the exponential function.	SE: 398–403, 404–410, 411–418, 419–423 TE: 398–403, 404–410, 411–418, 419–423 LM: 7-1A, 7-1B, 7-2A, 7-2B, 7-3A, 7-3B, 7-4A, 7-4B RM: 98, 99, 100, 101, 102, 103, 104, 105, 106, 107 AR: 89–100
A3.2.3 Apply properties of exponential and logarithmic functions.	SE: 398–403, 404–410, 411–418, 419–423 TE: 398–403, 404–410, 411–418, 419–423 LM: 7-1A, 7-1B, 7-2A, 7-2B, 7-3A, 7-3B, 7-4A, 7-4B RM: 98, 99, 100, 101, 102, 103, 104, 105, 106, 107 AR: 89–100
A3.2.4 Understand and use the fact that the base of an exponential function determines whether the function increases or decreases and understand how the base affects the rate of growth or decay.	SE: 398–403, 404–410, 411–418, 419–423 TE: 398–403, 404–410, 411–418, 419–423 LM: 7-1A, 7-1B, 7-2A, 7-2B, 7-3A, 7-3B, 7-4A, 7-4B RM: 98, 99, 100, 101, 102, 103, 104, 105, 106, 107 AR: 89–100
A.3.2.5 Relate exponential and logarithmic functions to real phenomena, including half-life and doubling time.	SE: 404–410, 411–418, 419–423 TE: 404–410, 411–418, 419–423 LM: 7-2A, 7-2B, 7-3A, 7-3B, 7-4A, 7-4B RM: 100, 101, 102, 103, 104, 105, 106, 107 AR: 89–100
A3.3 Quadratic Functions	
A3.3.1 Write the symbolic form and sketch the graph of a quadratic function given appropriate information.	SE: 526–531, 532–535, 537–542 TE: 526–531, 532–535, 537–542 LM: 9-1A, 9-1B, 9-2A, 9-2B, 9-3A, 9-3B RM: 129, 130, 132, 133, 134, 135, 136, 137, 138 AR: 114–121
A3.3.2 Identify the elements of a parabola (vertex, axis of symmetry, direction of opening) given its symbolic form or its graph, and relate these elements to the coefficient(s) of the symbolic form of the function.	SE: 526–531, 532–535, 537–542 TE: 526–531, 532–535, 537–542 LM: 9-1A, 9-1B, 9-2A, 9-2B, 9-3A, 9-3B RM: 129, 130, 132, 133, 134, 135, 136, 137, 138 AR: 114–121

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A3.3.3 Convert quadratic functions from standard to vertex form by completing the square.	SE: 723–728 TE: 723–728 LM: 12-2A, 12-2B RM: 182, 183, 184 AR: 159–164
A3.3.4 Relate the number of real solutions of a quadratic equation to the graph of the associated quadratic function.	SE: 558–563 TE: 558–563 LM: 9-6A, 9-6B RM: 142, 143 AR: 114–121
A3.3.5 Express quadratic functions in vertex form to identify their maxima or minima, and in factored form to identify their zeros.	SE: 714–721, 729–735 TE: 714–721, 729–735 LM: 12-1A, 12-1B, 12-3A, 12-3B RM: 178, 179, 180, 181, 185, 186 AR: 159–164
A3.4 Power Functions	
A3.4.1 Write the symbolic form and sketch the graph of power functions.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 452–456 TE: 452–456
A3.4.2 Express direct and inverse relationships as functions and recognize their characteristics.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 72–75, 79–83 TE: 72–75, 79–83
A3.4.3 Analyze the graphs of power functions, noting reflectional or rotational symmetry.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 452–456 TE: 452–456
A3.5 Polynomial Functions	
A3.5.1 Write the symbolic form and sketch the graph of simple polynomial functions.	SE: 754–760 TE: 754–760 LM: 12-7A, 12-7B RM: 191, 192, 193, 194 AR: 159–164
A3.5.2 Understand the effects of degree, leading coefficient, and number of real zeros on the graphs of polynomial functions of degree greater than 2.	SE: 754–760 TE: 754–760 LM: 12-7A, 12-7B RM: 191, 192, 193, 194 AR: 159–164

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A3.5.3 Determine the maximum possible number of zeros of a polynomial function, and understand the relationship between the x-intercepts of the graph and the factored form of the function.	SE: 754–760 TE: 754–760 LM: 12-7A, 12-7B RM: 191, 192, 193, 194 AR: 159–164
A3.6 Rational Functions	
A3.6.1 Write the symbolic form and sketch the graph of simple rational functions.	SE: 761–766 TE: 761–766 LM: 12-8A, 12-8B RM: 195 AR: 159–164
A3.6.2 Analyze graphs of simple rational functions and understand the relationship between the zeros of the numerator and denominator and the function’s intercepts, asymptotes, and domain.	SE: 761–766 TE: 761–766 LM: 12-8A, 12-8B RM: 195 AR: 159–164
A3.7 Trigonometric Functions	
A3.7.1 Use the unit circle to define sine and cosine; approximate values of sine and cosine; use sine and cosine to define the remaining trigonometric functions; explain why the trigonometric functions are periodic.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 682–685, 687–690 TE: 682–685, 687–690
A3.7.2 Use the relationship between degree and radian measures to solve problems.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 712–715 TE: 712–715
A3.7.3 Use the unit circle to determine the exact values of sine and cosine, for integer multiples of $\frac{\pi}{6}$ and $\frac{\pi}{4}$.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 687–690 TE: 687–690
A3.7.4 Graph the sine and cosine functions; analyze graphs by noting domain, range, period, amplitude, and location of maxima and minima.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 693–696 TE: 693–696

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A3.7.5 Graph transformations of basic trigonometric functions (involving changes in period, amplitude, and midline) and understand the relationship between constants in the formula and the transformed graph.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 694–696 TE: 694–696
*A1.1.7 Transform trigonometric expressions into equivalent forms using basic identities such as	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 687–690 TE: 687–690
*A2.2.4 If a function has an inverse, find the expression(s) for the inverse.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 529–533 TE: 529–533
*A2.2.5 Write an expression for the composition of one function with another; recognize component functions when a function is a composition of other functions.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 516–519, 530 TE: 516–519, 530
*A2.2.6 Know and interpret the function notation for inverses and verify that two functions are inverses using composition.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 530–532 TE: 530–532
*A2.4.4 Use methods of linear programming to represent and solve simple real-life problems.	This skill is taught in Wright Group/McGraw-Hill <i>Advanced Algebra</i> . SE: 355–359 TE: 355–359