

**Side-by-Side Comparison of the Texas Educational Knowledge and Skills (TEKS)
and Louisiana Grade Level Expectations (GLEs)**

MATHEMATICS: Algebra 2

TEKS	Comments	Louisiana GLE
(A2.1) Foundations for Functions. The student uses properties and attributes of functions and applies functions to problem situations.	<i>Objective will be tested in Grade 11 Exit Level TAKS - Objective 2</i>	
(A2.1.A) identify the mathematical domains and ranges of functions and determine reasonable domain and range values for continuous and discrete situations; and	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs</i>	
(A2.1.B) collect and organize data, make and interpret scatterplots, fit the graph of a function to the data, interpret the results, and proceed to model, predict, and make decisions and critical judgments.	<i>Approximate match. The TAKS expectation is more general and goes beyond a scatter plot.</i>	A2-19 Correlate/match data sets or graphs and their representations and classify them as exponential, logarithmic, or polynomial functions (D-2-H) A2-24 Model a given set of real-life data with a non-linear function (P-1-H) (P-5-H)
(A2.2) Foundations for Functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations.		
(A2.2.A) use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations; and	<i>Approximate match. The TEKS expectation is more comprehensive and contains more concepts and skills than the LA GLE.</i>	A2-5 Factor simple quadratic expressions including general trinomials, perfect squares, difference of two squares, and polynomials with common factors (A-2-H)
(A2.2.B) use complex numbers to describe the solutions of quadratic equations.	<i>Approximate match. The TEKS expectation specifically includes quadratic equations whereas the LA GLE is limited to basic operations.</i>	A2-1 Read, write, and perform basic operations on complex numbers (N-1-H) (N-5-H)

TEKS	Comments	Louisiana GLE
(A2.3) Foundations for Functions. The student formulates systems of equations and inequalities from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situations.	<i>Objective will be tested in Grade 11 Exit Level TAKS - Objective 4</i>	
(A2.3.A) analyze situations and formulate systems of equations in two or more unknowns or inequalities in two unknowns to solve problems;	<i>**Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	<p><i>**Systems of equations are addressed however, in the LA Algebra 1 (Grade 9) GLEs below:</i></p> <p>A1-14 Graph and interpret linear inequalities in one or two variables and systems of linear inequalities (A-2-H) (A-4-H)</p> <p>A1-16 Interpret and solve systems of linear equations using graphing, substitution, elimination, with and without technology, and matrices using technology (A-4-H)</p>
(A2.3.B) use algebraic methods, graphs, tables, or matrices, to solve systems of equations or inequalities; and	<i>**Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	<p><i>**Systems of equations are addressed however, in the LA Algebra 1 (Grade 9) GLEs below:</i></p> <p>A1-14 Graph and interpret linear inequalities in one or two variables and systems of linear inequalities (A-2-H) (A-4-H)</p> <p>A1-16 Interpret and solve systems of linear equations using graphing, substitution, elimination, with and without technology, and matrices using technology (A-4-H)</p>
(A2.3.C) interpret and determine the reasonableness of solutions to systems of equations or inequalities for given contexts	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	
(A2.4) Algebra and Geometry. The student connects algebraic and geometric representations of functions.		
(A2.4.A) identify and sketch graphs of parent functions, including linear ($f(x) = x$), quadratic ($f(x) = x^2$), exponential ($f(x) = ax$), and logarithmic ($f(x) = \log ax$) functions, absolute value of x ($f(x) = x $), square root of x ($f(x) = \sqrt{x}$), and reciprocal of x ($f(x) = 1/x$);	<i>Approximate match. The TEKS expectation and the LA GLE are both fairly specific but there are components that are in one but not the other.</i>	<p>A2-8 Categorize non-linear graphs and their equations as quadratic, cubic, exponential, logarithmic, step function, rational, trigonometric, or absolute value (A-3-H) (P-5-H)</p> <p>A2-27 Compare and contrast the properties of families of polynomial, rational, exponential, and logarithmic functions, with and without technology (P-3-H)</p>

TEKS	Comments	Louisiana GLE
(A2.4.B) extend parent functions with parameters such as a in $f(x) = a/x$ and describe the effects of the parameter changes on the graph of parent functions; and	<i>Approximate match. The LA GLE specifies the use of technology and is more specific regarding the types of functions.</i>	A2-7 Explain, using technology, how the graph of a function is affected by change of degree, coefficient, and constants in polynomial, rational, radical, exponential, and logarithmic functions (A-3-H) A2-27 Compare and contrast the properties of families of polynomial, rational, exponential, and logarithmic functions, with and without technology (P-3-H)
(A2.4.C) describe and analyze the relationship between a function and its inverse.	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	
(A2.5) Algebra and Geometry. The student knows the relationship between the geometric and algebraic descriptions of conic sections.		
(A2.5.A) describe a conic section as the intersection of a plane and a cone;		A2-15 Identify conic sections, including the degenerate conics, and describe the relationship of the plane and double-napped cone that forms each conic (G-1-H)
(A2.5.B) sketch graphs of conic sections to relate simple parameter changes in the equation to corresponding changes in the graph;	<i>Approximate match. The LA GLE specifies the use of technology and is more specific regarding the types of functions.</i>	A2-7 Explain, using technology, how the graph of a function is affected by change of degree, coefficient, and constants in polynomial, rational, radical, exponential, and logarithmic functions (A-3-H)
(A2.5.C) identify symmetries from graphs of conic sections;	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	
(A2.5.D) identify the conic section from a given equation; and	<i>Approximate match. The LA GLE addresses different types of functions whereas the TEKS focuses on distinguishing different conics via subtle differences in coefficients and operations within one specific type of function (quadratic).</i>	A2-8 Categorize non-linear graphs and their equations as quadratic, cubic, exponential, logarithmic, step function, rational, trigonometric, or absolute value (A-3-H) (P-5-H)

TEKS	Comments	Louisiana GLE
(A2.5.E) use the method of completing the square.		A2-9 Solve quadratic equations by factoring, completing the square, using the quadratic formula, and graphing (A-4-H)
(A2.6) Quadratic and Square Root Functions. The student understands that quadratic functions can be represented in different ways and translates among their various representations.		
(A2.6.A) determine the reasonable domain and range values of quadratic functions, as well as interpret and determine the reasonableness of solutions to quadratic equations and inequalities;	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	
(A2.6.B) relate representations of quadratic functions, such as algebraic, tabular, graphical, and verbal descriptions; and	<i>Approximate match. The LA GLE addresses different types of functions whereas the TEKS focuses on quadratic functions.</i>	A2-4 Translate and show the relationships among non-linear graphs, related tables of values, and algebraic symbolic representations (A-1-H)
(A2.6.C) determine a quadratic function from its roots or a graph	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	
(A2.7) Quadratic and Square Root Functions. The student interprets and describes the effects of changes in the parameters of quadratic functions in applied and mathematical situations.		

TEKS	Comments	Louisiana GLE
(A2.7.A) use characteristics of the quadratic parent function to sketch the related graphs and connect between the $y = ax^2 + bx + c$ and the $y = a(x - h)^2 + k$ symbolic representations of quadratic functions	<i>Approximate match. The LA GLE specifies the use of technology and is more specific regarding the types of functions. The GLE focuses on the simple sorting of the graphs by type and the TEKS expectation focuses on moving between the graph and the equation. The TEKS expectation includes the translation and connection of two types of equations within quadratic functions.</i>	A2-8 Categorize non-linear graphs and their equations as quadratic, cubic, exponential, logarithmic, step function, rational, trigonometric, or absolute value (A-3-H) (P-5-H)
(A2.7.B) use the parent function to investigate, describe, and predict the effects of changes in a, h, and k on the graphs of $y = a(x - h)^2 + k$ form of a function in applied and purely mathematical situations.	<i>Approximate match. The LA GLE specifies the use of technology and includes several types of functions whereas the TEKS expectation focuses on distinguishing differences within one specific type of conic function (parabola) via subtle differences in coefficients and terms.</i>	A2-7 Explain, using technology, how the graph of a function is affected by change of degree, coefficient, and constants in polynomial, rational, radical, exponential, and logarithmic functions (A-3-H)
(A2.8) Quadratic and Square Root Functions. The student formulates equations and inequalities based on quadratic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.		

TEKS	Comments	Louisiana GLE
(A2.8.A) analyze situations involving quadratic functions and formulate quadratic equations or inequalities to solve problems;	<i>Approximate match. A2-10, the LA GLE is much more comprehensive because it includes different types of functions. The second LA GLE (A2-9) is specific to quadratic functions. The TEKS expectation includes inequalities not mentioned in either LA GLE.</i>	A2-10 Model and solve problems involving quadratic, polynomial, exponential, logarithmic, step function, rational, and absolute value equations using technology (A-4-H) A2-9 Solve quadratic equations by factoring, completing the square, using the quadratic formula, and graphing (A-4-H) A2-25 Apply the concept of a function and function notation to represent and evaluate functions (P-1-H) (P-5-H)
(A2.8.B) analyze and interpret the solutions of quadratic equations using discriminants and solve quadratic equations using the quadratic formula;	<i>Approximate match. The LA GLE is more comprehensive because it includes different methods and is more explicit about strategies to be used to solve quadratic equations. The TEKS expectation includes discriminants not mentioned in the LA GLE.</i>	A2-9 Solve quadratic equations by factoring, completing the square, using the quadratic formula, and graphing (A-4-H)
(A2.8.C) compare and translate between algebraic and graphical solutions of quadratic equations; and	<i>Approximate match. The LA GLE is more comprehensive because it includes different methods.</i>	A2-9 Solve quadratic equations by factoring, completing the square, using the quadratic formula, and graphing (A-4-H)
(A2.8.D) solve quadratic equations and inequalities using graphs, tables, and algebraic methods.	<i>Approximate match. Both include different methods which are listed in one but not the other. The TEKS includes inequalities but are not noted in the LA GLE.</i>	A2-9 Solve quadratic equations by factoring, completing the square, using the quadratic formula, and graphing (A-4-H)

TEKS	Comments	Louisiana GLE
(A2.9) Quadratic and Square Root Functions. The student formulates equations and inequalities based on square root functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.		
(A2.9.A) use the parent function to investigate, describe, and predict the effects of parameter changes on the graphs of square root functions and describe limitations on the domains and ranges;	<i>Approximate match. The LA GLE specifies the use of technology and includes several types of functions whereas the TEKS expectation focuses on distinguishing differences within one specific type of function (square root).</i>	A2-7 Explain, using technology, how the graph of a function is affected by change of degree, coefficient, and constants in polynomial, rational, radical, exponential, and logarithmic functions (A-3-H)
(A2.9.B) relate representations of square root functions, such as algebraic, tabular, graphical, and verbal descriptions;	<i>Approximate match. The LA GLE addresses different types of functions whereas the TEKS focuses on square root functions.</i>	A2-4 Translate and show the relationships among non-linear graphs, related tables of values, and algebraic symbolic representations (A-1-H)
(A2.9.C) determine the reasonable domain and range values of square root functions, as well as interpret and determine the reasonableness of solutions to square root equations and inequalities;	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	
(A2.9.D) determine solutions of square root equations using graphs, tables, and algebraic methods;	<i>Approximate match. The LA GLE is more comprehensive because it includes different types of functions. The TEKS expectation is specific to square root quadratic functions.</i>	A2-10 Model and solve problems involving quadratic, polynomial, exponential, logarithmic, step function, rational, and absolute value equations using technology (A-4-H) A2-25 Apply the concept of a function and function notation to represent and evaluate functions (P-1-H) (P-5-H)
(A2.9.E) determine solutions of square root inequalities using graphs and tables;	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	

TEKS	Comments	Louisiana GLE
(A2.9.F) analyze situations modeled by square root functions, formulate equations or inequalities, select a method, and solve problems; and	<i>Approximate match. The TEKS expectation is focused on square root functions whereas the cited LA GLE includes different types of functions and does not address inequalities. The GLEs are more comprehensive.</i>	A2-10 Model and solve problems involving quadratic, polynomial, exponential, logarithmic, step function, rational, and absolute value equations using technology (A-4-H) A2-24 Model a given set of real-life data with a non-linear function (P-1-H) (P-5-H) A2-25 Apply the concept of a function and function notation to represent and evaluate functions (P-1-H) (P-5-H)
(A2.9.G) connect inverses of square root functions with quadratic functions.	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	
(A2.10) Rational Functions. The student formulates equations and inequalities based on rational functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.		
(A2.10.A) use quotients of polynomials to describe the graphs of rational functions, predict the effects of parameter changes, describe limitations on the domains and ranges, and examine asymptotic behavior;	<i>Approximate match. The TEKS expectation is focused on rational functions whereas the cited LA GLEs include different types of functions</i>	A2-6 Analyze functions based on zeros, asymptotes, and local and global characteristics of the function (A-3-H) A2-7 Explain, using technology, how the graph of a function is affected by change of degree, coefficient, and constants in polynomial, rational, radical, exponential, and logarithmic functions (A-3-H) A2-8 Categorize non-linear graphs and their equations as quadratic, cubic, exponential, logarithmic, step function, rational, trigonometric, or absolute value (A-3-H) (P-5-H)
(A2.10.B) analyze various representations of rational functions with respect to problem situations;	<i>Approximate match. The TEKS expectation includes application to real world problems whereas the cited LA GLE is more abstract.</i>	A2-6 Analyze functions based on zeros, asymptotes, and local and global characteristics of the function (A-3-H) A2-24 Model a given set of real-life data with a non-linear function (P-1-H) (P-5-H) A2-25 Apply the concept of a function and function notation to represent and evaluate functions (P-1-H) (P-5-H)

TEKS	Comments	Louisiana GLE
(A2.10.C) determine the reasonable domain and range values of rational functions, as well as interpret and determine the reasonableness of solutions to rational equations and inequalities;	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	
(A2.10.D) determine the solutions of rational equations using graphs, tables, and algebraic methods;	<i>Approximate match. The TEKS expectation is focused on rational functions and specific methods whereas the cited LA GLEs include different types of functions.</i>	<p>A2-10 Model and solve problems involving quadratic, polynomial, exponential, logarithmic, step function, rational, and absolute value equations using technology (A-4-H)</p> <p>A2-4 Translate and show the relationships among non-linear graphs, related tables of values, and algebraic symbolic representations (A-1-H)</p> <p>A2-25 Apply the concept of a function and function notation to represent and evaluate functions (P-1-H) (P-5-H)</p>
(A2.10.E) determine solutions of rational inequalities using graphs and tables;	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	
(A2.10.F) analyze a situation modeled by a rational function, formulate an equation or inequality composed of a linear or quadratic function, and solve the problem; and	<i>Approximate match. The TEKS expectation is focused on rational functions whereas the cited LA GLE includes different types of functions and does not address inequalities.</i>	A2-10 Model and solve problems involving quadratic, polynomial, exponential, logarithmic, step function, rational, and absolute value equations using technology (A-4-H)
(A2.10.G) use functions to model and make predictions in problem situations involving direct and inverse variation.	<i>**Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLE</i>	<p>**Direct and inverse variation are addressed however, in the LA Algebra 1 (Grade 9) GLEs below:</p> <p>A1-7 Use proportional reasoning to model and solve real-life problems involving direct and inverse variation (N-6-H)</p>
(A2.11) Exponential and Logarithmic Functions. The student formulates equations and inequalities based on exponential and logarithmic functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.		
(A2.11.A) develop the definition of logarithms by exploring and describing the relationship between exponential functions and their inverses;		A2-3 Describe the relationship between exponential and logarithmic equations (N-2-H)

TEKS	Comments	Louisiana GLE
(A2.11.B) use the parent functions to investigate, describe, and predict the effects of parameter changes on the graphs of exponential and logarithmic functions, describe limitations on the domains and ranges, and examine asymptotic behavior;	<i>Approximate match. The LA GLE specifies the use of technology and includes several types of functions whereas the TEKS expectation focuses on distinguishing differences within one specific area of functions (exponential and logarithmic). Limitations on the domain and range are not specifically addressed on the LA GLEs.</i>	A2-7 Explain, using technology, how the graph of a function is affected by change of degree, coefficient, and constants in polynomial, rational, radical, exponential, and logarithmic functions (A-3-H) A2-6 Analyze functions based on zeros, asymptotes, and local and global characteristics of the function (A-3-H)
(A2.11.C) determine the reasonable domain and range values of exponential and logarithmic functions, as well as interpret and determine the reasonableness of solutions to exponential and logarithmic equations and inequalities;	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLE</i>	
(A2.11.D) determine solutions of exponential and logarithmic equations using graphs, tables, and algebraic methods;	<i>Approximate match. The TEKS expectation is focused on exponential and logarithmic functions and specific methods whereas the cited LA GLEs include different types of functions.</i>	A2-2 Evaluate and perform basic operations on expressions containing rational exponents (N-2-H) A2-10 Model and solve problems involving quadratic, polynomial, exponential, logarithmic, step function, rational, and absolute value equations using technology (A-4-H) A2-4 Translate and show the relationships among non-linear graphs, related tables of values, and algebraic symbolic representations (A-1-H)
(A2.11.E) determine solutions of exponential and logarithmic inequalities using graphs and tables; and	<i>Not specifically addressed in the LA Algebra 2 (Grade 11-12) GLEs.</i>	

TEKS	Comments	Louisiana GLE
(A2.11.F) analyze a situation modeled by an exponential function, formulate an equation or inequality, and solve the problem.	<i>Approximate match. The TEKS expectation is focused on exponential functions whereas the cited LA GLE includes different types of functions and does not address inequalities.</i>	A2-2 Evaluate and perform basic operations on expressions containing rational exponents (N-2-H) A2-10 Model and solve problems involving quadratic, polynomial, exponential, logarithmic, step function, rational, and absolute value equations using technology (A-4-H) A2-24 Model a given set of real-life data with a non-linear function (P-1-H) (P-5-H)
		Measurement
	<i>Not specifically addressed in the TEKS. The TEKS focus strictly on the subject area of Algebra 2. The LA Algebra 2 GLEs in essence are the grade 11-12 GLEs which included the same strands found in grades K-8. The assumption is that many of the expectations in this Measurement strand could be implied in the TEKS Algebra 2 expectations but caution must be taken to insure these expectations occur as part of the TEKS Algebra 2 material.</i>	A2-11 Calculate angle measures in degrees, minutes, and seconds (M-1-H) A2-12 Explain the unit circle basis for radian measure and show its relationship to degree measure of angles (M-1-H) A2-13 Identify and apply the unit circle definition to trigonometric functions and use this definition to solve real-life problems (M-4-H) A2-14 Use the Law of Sines and the Law of Cosines to solve problems involving triangle measurements (M-4-H)
		Geometry
	<i>Not specifically addressed in the Algebra 2 TEKS.</i>	A2-16 Represent translations, reflections, rotations, and dilations of plane figures using sketches, coordinates, vectors, and matrices (G-3-H)
		Data Analysis, Probability, and Discrete Math

TEKS	Comments	Louisiana GLE
	<p><i>Not specifically addressed in the TEKS. The TEKS focus strictly on the subject area of Algebra 2. The LA Algebra 2 GLEs in essence are the grade 11-12 GLEs which included the same strands found in grades K-8. The assumption is that many of the expectations in this Data Analysis, Probability, and Discrete Math strand could be implied in the TEKS Algebra 2 expectations but caution must be taken to insure these expectations occur as part of the TEKS Algebra 2 material.</i></p>	<p>A2-17 Discuss the differences between samples and populations (D-1-H)</p> <p>A2-18 Devise and conduct well-designed experiments/surveys involving randomization and considering the effects of sample size and bias (D-1-H)</p> <p>A2-20 Interpret and explain, with the use of technology, the regression coefficient and the correlation coefficient for a set of data (D-2-H)</p> <p>A2-21 Describe and interpret displays of normal and non-normal distributions (D-6-H)</p> <p>A2-22 Explain the limitations of predictions based on organized sample sets of data (D-7-H)</p> <p>A2-23 Represent data and solve problems involving Euler and Hamiltonian paths (D-9-H)</p>
		Patterns, Relations, and Functions
	<p><i>Not specifically addressed in the Algebra 2 TEKS.</i></p>	<p>A2-26 Represent and solve problems involving nth terms and sums for arithmetic and geometric series (P-2-H)</p> <p>A2-28 Represent and solve problems involving the translation of functions in the coordinate plane (P-4-H)</p>