Algebra II	
Louisiana Student Standards	**Louisiana Connectors (LC)**
A2: N-RN.A.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, we define 51/3 to be the cube root of 5 because we want (51/3)3 = 5(1/3)3 to hold, so (51/3)3 must equal 5.*	No Louisiana Connectors written for this standard.
A2: N-RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	**LC.A2: N-RN.A.2** Rewrite expressions that include rational exponents.
A2: N-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.	No Louisiana Connectors written for this standard.
A2: N-CN.A.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.	No Louisiana Connectors written for this standard.
A2: N-CN.A.2 Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	No Louisiana Connectors written for this standard.
A2: N-CN.C.7 Solve quadratic equations with real coefficients that have complex solutions.	No Louisiana Connectors written for this standard.
A2: A-SSE.A.2 Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.*	No Louisiana Connectors written for this standard.
A2: A-SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. c. Use the properties of exponents to transform expressions for exponential functions emphasizing integer exponents. *For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*	**LC.A2: A-SSE.B.3** Represent quantities and expressions that use exponents.

Algebra II	
Louisiana Student Standards	**Louisiana Connectors (LC)**
A2: A-SSE.B.4 Apply the formula for the sum of a finite geometric series (when the common ratio is not 1) to solve problems. *For example, calculate mortgage payments.*	**LC.A2: A-SSE.B.4** Use the formula to solve real world problems such as calculating the height of a tree after n years given the initial height of the tree and the rate the tree grows each year.
A2: A-APR.A.2 Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	**LC.A2: A-APR.A.2** Understand and apply the Remainder Theorem.
A2: A-APR.B.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	**LC.A2: A-APR.B.3** Find the zeros of a polynomial when the polynomial is factored.
A2: A-APR.C.4 Use polynomial identities to describe numerical relationships. *For example, the polynomial identity* $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ *can be used to generate Pythagorean triples.*	**LC.A2: A-APR.C.4a** Prove polynomial identities by showing steps and providing reasons. **LC.A2: A-APR.C.4b** Illustrate how polynomial identities are used to determine numerical relationships. *For example the polynomial identity* $(a + b)^2 = a^2 + 2ab + b^2$ *can be used to rewrite* $(25)^2 = (20 + 5)^2 = 20^2 + 2(20*5) + 5^2$.
A2: A-APR.D.6 Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	**LC.A2: A-APR.D.6** Rewrite rational expressions, a(x)/b(x), in the form q(x) + r(x)/b(x) by using factoring, long division, or synthetic division.
A2: A-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*	**LC.A2: A-CED.A.1** Translate a real-world problem into a one variable linear equation.
A2: A-REI.A.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	No Louisiana Connectors written for this standard.
A2: A-REI.A.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	No Louisiana Connectors written for this standard.

Algebra II	
Louisiana Student Standards	**Louisiana Connectors (LC)**
A2: A-REI.B.4 Solve quadratic equations in one variable. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.	**LC.A2: A-REI.B.4** Solve quadratic equations in one variable by simple inspection, taking the square root, factoring, and completing the square.
A2: A-REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), limited to systems of at most three equations and three variables. With graphic solutions, systems are limited to two variables.	**LC.A2: A-REI.C.6a** Solve systems of equations using the elimination method (sometimes called linear combinations). **LC.A2: A-REI.C.6b** Solve a system of equations by substitution (solving for one variable in the first equation and substitution it into the second equation). **LC.A2: A-REI.C.6c** Solve systems of equations using graphs.
A2: A-REI.C.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.*	**LC.A2: A-REI.C.7** Solve a system containing a linear equation and a quadratic equation in two variables graphically and symbolically.
A2: A-REI.D.11 Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	**LC.A2: A-REI.D.11** Explain why the intersection of $y = f(x)$ and $y = g(x)$ is the solution of the equation $f(x) = g(x)$ for any combination of linear or exponential. Find the solution(s) by: Using technology to graph the equations and determine their point of intersection, Using tables of values, or Using successive approximations that become closer and closer to the actual value.
A2: F-IF.B.4 For a function that model~~s~~ a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*	No Louisiana Connectors written for this standard.

Algebra II	
Louisiana Student Standards	**Louisiana Connectors (LC)**
A2: F-IF.B.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	No Louisiana Connectors written for this standard.
A2: F-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	No Louisiana Connectors written for this standard.
A2: F-IF.C.8b Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. b. Use the properties of exponents to interpret expressions for exponential functions. *For example, identify percent rate of change in functions such as* $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, *and classify them as representing exponential growth or decay.*	No Louisiana Connectors written for this standard.
A2: F-IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, determine which has the larger maximum.*	No Louisiana Connectors written for this standard.

Algebra II	
Louisiana Student Standards	**Louisiana Connectors (LC)**
A2: F-BF.A.1 Write a linear, quadratic, or exponential function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context. b. Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*	No Louisiana Connectors written for this standard.
A2: F-BF.A.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	No Louisiana Connectors written for this standard.
A2: F-BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative). Without technology, find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*	No Louisiana Connectors written for this standard.
A2: F-BF.B.4a Find inverse functions. a. Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. *For example,* $f(x) =2x^3$ *or* $f(x) = (x+1)/(x-1)$ *for* $x \neq 1$.	No Louisiana Connectors written for this standard.
A2: F-LE.A.2 Given a graph, a description of a relationship, or two input-output pairs (include reading these from a table), construct linear and exponential functions, including arithmetic and geometric sequences, to solve multi-step problems.	No Louisiana Connectors written for this standard.
A2: F-LE.A.4 For exponential models, express as a logarithm the solution to a $b^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.	No Louisiana Connectors written for this standard.

Algebra II	
Louisiana Student Standards	**Louisiana Connectors (LC)**
A2: F-LE.B.5 Interpret the parameters in a linear, quadratic, or exponential function in terms of a context.	No Louisiana Connectors written for this standard.
A2: F-TF.A.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	No Louisiana Connectors written for this standard.
A2: F-TF.A.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	No Louisiana Connectors written for this standard.
A2: F-TF.B.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	No Louisiana Connectors written for this standard.
A2: F-TF.C.8 Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant.	No Louisiana Connectors written for this standard.
A2: S-ID.A.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	**LC.A2: S-ID.A.4** Use descriptive stats; range, median, mode, mean, outliers/gaps to describe the data set.
A2: S-ID.B.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize exponential models.*	**LC.A2: S-ID.B.6a** Represent data on a scatter plot to describe and predict. **LC.A2: S-ID.B.6b** Select an appropriate statement that describes the relationship between variables.
A2: S-IC.A.1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population	**LC.A2: S-IC.A.1** Determine what inferences can be made from statistics.
A2: S-IC.A.2 Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?*	No Louisiana Connectors written for this standard.

Algebra II	
Louisiana Student Standards	**Louisiana Connectors (LC)**
A2: S-IC.B.3 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	No Louisiana Connectors written for this standard.
A2: S-IC.B.4 Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	No Louisiana Connectors written for this standard.
A2: S-IC.B.5 Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	No Louisiana Connectors written for this standard.
A2: S-IC.B.6 Evaluate reports based on data.	**LC.A2: S-IC.B.6a** Make or select an appropriate statement(s) about findings. **LC.A2: S-IC.B.6b** Apply the results of the data to a real world situation.