Standard ID	Standard Text	Edgenuity Lesson Name
N	Number and Quantity	
N-CN	The Complex Number System	
	Perform arithmetic operations with complex numbers.	
N-CN.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.	
		Complex Numbers Operations with Complex Numbers Writing Polynomial Functions from Complex Roots
N-CN.2	Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	
		Operations with Complex Numbers Simplifying Rational Expressions by Factoring Writing Polynomial Functions from Complex Roots
	Use complex numbers in polynomial identities and equations. [Polynomials with real coefficients]	
N-CN.7	Solve quadratic equations with real coefficients that have complex solutions.	
		The Fundamental Theorem of Algebra The Quadratic Formula
N-CN.8	Extend polynomial identities to the complex numbers.	
		The Fundamental Theorem of Algebra Writing Polynomial Functions from Complex Roots
N-CN.9	Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	
		The Fundamental Theorem of Algebra The Rational Roots Theorem
A	Algebra	
A-SSE	Seeing Structure in Expressions	
	Interpret the structure of expressions. [Polynomial and rational]	
A-SSE.1	Interpret expressions that represent a quantity in terms of its context.	
A-SSE.1.a	Interpret parts of an expression, such as terms, factors, and coefficients.	
		Addition and Subtraction of Polynomials Factoring Polynomials Completely Introduction to Polynomials Multiplication of Polynomials Real Numbers

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A-SSE.1.a	Interpret parts of an expression, such as terms, factors, and coefficients. *(Cont'd)*	Simplifying Expressions Simplifying Polynomial Expressions Sum and Difference of Two Cubes
A-SSE.1.b	Interpret complicated expressions by viewing one or more of their parts as a single entity.	Rewriting Exponential Functions Simplifying Expressions The Fundamental Theorem of Algebra
A-SSE.2	Use the structure of an expression to identify ways to rewrite it.	Base e Evaluating Logarithmic Expressions Factoring Polynomials Completely Modeling with Exponential and Logarithmic Equations Negative Exponents Properties of Logarithms Rational Exponents Rewriting Exponential Functions Simplifying Nonperfect Roots Simplifying Rational Expressions Simplifying Rational Expressions by Factoring Solving Exponential and Logarithmic Equations Solving Exponential Equations by Rewriting the Base
	Write expressions in equivalent forms to solve problems.	
A-SSE.4	Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems.	Geometric Series
A-APR	Arithmetic with Polynomials and Rational Expressions Perform arithmetic operations on polynomials. [Beyond quadratic]	
A-APR.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	Addition and Subtraction of Polynomials Laws of Exponents Multiplication of Polynomials Simplifying Polynomial Expressions

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	Understand the relationship between zeros and factors of polynomials.	
A-APR.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).	
		Synthetic Division and the Remainder Theorem
A-APR.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.	
		Graphing Polynomial Functions Graphs of Polynomial Functions Solving Polynomial Equations using Technology
	Use polynomial identities to solve problems.	
A-APR.4	Prove polynomial identities and use them to describe numerical relationships.	
		Factoring Polynomials Completely Sum and Difference of Two Cubes
A-APR.5	Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.	
		The Binomial Theorem
	Rewrite rational expressions. [Linear and quadratic denominators]	
A-APR.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.	
		Division of Polynomials Synthetic Division and the Remainder Theorem
A-APR.7	Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	
		Adding and Subtracting Rational Expressions Division of Polynomials Multiplying and Dividing Rational Expressions Simplifying Rational Expressions Simplifying Rational Expressions by Factoring

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A-CED	Creating Equations Create equations that describe numbers or relationships. [Equations using all available types of expressions, including simple root functions]	
A-CED.1	Create equations and inequalities in one variable including ones with absolute value and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	
		Quadratic Inequalities
A-CED.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	
		Modeling with Exponential and Logarithmic Equations Rewriting Exponential Functions Scatterplots Solving Exponential and Logarithmic Equations Two-Variable Linear Inequalities Writing Two-Variable Linear Equations
A-CED.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.	
		Linear Programming
A-CED.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	
		Literal Equations
A-REI	Reasoning with Equations and Inequalities Understand solving equations as a process of reasoning and explain the reasoning. [Simple radical and rational]	
A-REI.2	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	
		Radical Equations and Extraneous Roots Rational Equations Solving Equations Containing Two Radicals
	Solve equations and inequalities in one variable.	
A-REI.3.1.	Solve one-variable equations and inequalities involving absolute value, graphing the solutions and interpreting them in context.	
		Solving Absolute Value Equations

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	Represent and solve equations and inequalities graphically. [Combine polynomial, rational, radical, absolute value, and exponential functions.]	
A-REI.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.	
		Solving Linear Systems Graphically Solving One-Variable Equations with Systems Solving Polynomial Equations using Technology
F	Functions	
F-IF	Interpreting Functions Interpret functions that arise in applications in terms of the context. [Emphasize selection of appropriate models.]	
F-IF.4	For a function that models 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.	
		Comparing Exponential, Linear, and Quadratic Growth Exploration of the Graphing Calculator Graphing Exponential Functions Graphing Rational Functions Linear Functions Linear Programming Modeling with Functions Modeling with Quadratic Equations Quadratic Functions Quadratic Inequalities Rate of Change Scatterplots Solving Linear Systems Graphically Solving One-Variable Equations with Systems Two-Variable Linear Inequalities
F-IF.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	
		Domain and Range Function Inverses Graphing Logarithmic Functions Relations and Functions

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F-IF.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *(Cont'd)*	Square Root Functions Transformations of Functions
F-IF.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.	Comparing Exponential, Linear, and Quadratic Growth Rate of Change
	Analyze functions using different representations. [Focus on using key features to guide selection of appropriate type of model function.]	
F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.	
F-IF.7.b	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Absolute Value Functions Graphing Radical Functions Piecewise Defined Functions Step Functions
F-IF.7.c	Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	Graphing Polynomial Functions Graphs of Polynomial Functions Monomial Functions Solving Polynomial Equations using Technology
F-IF.7.e	Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	Comparing Exponential, Linear, and Quadratic Growth Graphing Exponential Functions Graphing Logarithmic Functions
F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	Completing the Square Graphing Exponential Functions Modeling with Exponential and Logarithmic Equations

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F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	
	(Cont'd)	Modeling with Quadratic Equations Rewriting Exponential Functions Solving Exponential and Logarithmic Equations Solving Exponential Equations by Rewriting the Base
F-IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	
		Comparing Exponential, Linear, and Quadratic Growth Modeling with Functions Transformations of Functions
F-BF	Building Functions Build a function that models a relationship between two quantities. [Include all types of functions studied.]	
F-BF.1	Write a function that describes a relationship between two quantities.	
F-BF.1.b	Combine standard function types using arithmetic operations.	
		Function Operations
	Build new functions from existing functions. [Include simple radical, rational, and exponential functions; emphasize common effect of each transformation across function types.]	
F-BF.3	Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.	
		Transformations of Functions Transformations of Quadratic Functions
F-BF.4	Find inverse functions.	
F-BF.4.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.	
		Function Inverses Square Root Functions
F-LE	Linear, Quadratic, and Exponential Models Construct and compare linear, quadratic, and exponential models and solve problems.	
F-LE.4	For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.	
		Base e Evaluating Logarithmic Expressions

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F-LE.4	For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology. *(Cont'd)*	Modeling with Exponential and Logarithmic Equations Properties of Logarithms Solving Equations using Properties of Logarithms Solving Exponential and Logarithmic Equations Solving Logarithmic Equations using Technology
F-LE.4.1.	Prove simple laws of logarithms.	Base e Evaluating Logarithmic Expressions Properties of Logarithms
F-LE.4.2.	Use the definition of logarithms to translate between logarithms in any base.	Base e Evaluating Logarithmic Expressions Modeling with Exponential and Logarithmic Equations Properties of Logarithms Solving Exponential and Logarithmic Equations
F-LE.4.3.	Understand and use the properties of logarithms to simplify logarithmic numeric expressions and to identify their approximate values.	Base e Evaluating Logarithmic Expressions Modeling with Exponential and Logarithmic Equations Properties of Logarithms Solving Equations using Properties of Logarithms Solving Exponential and Logarithmic Equations Solving Logarithmic Equations using Technology
F-TF	Trigonometric Functions Extend the domain of trigonometric functions using the unit circle.	
F-TF.1	Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	Angles in Standard Position Radian Measure

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F-TF.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.	
		Evaluating the Six Trigonometric Functions
		Reciprocal Trigonometric Functions
		The Unit Circle
F-TF.2.1.	Graph all 6 basic trigonometric functions.	
		Graphing Cosecant and Secant Functions
		Graphing Tangent and Cotangent
	Model periodic phenomena with trigonometric functions.	
F-TF.5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	
		Changes in Period and Phase Shift of Sine and Cosine Functions
		Graphing Sine and Cosine
		Modeling with Periodic Functions
		Solving Trigonometric Equations
	Prove and apply trigonometric identities.	
F-TF.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 of the angle.	
		Evaluating the Six Trigonometric Functions
G	Geometry	
G-GPE	Expressing Geometric Properties with Equations	
	Translate between the geometric description and the equation for a conic section.	
G-GPE.3.1.	Given a quadratic equation of the form $ax^2 + by^2 + cx + dy + e = 0$, use the method for completing the square to put the equation into standard form; identify whether the graph of the equation is a circle, ellipse, parabola, or hyperbola, and graph the equation.	
		Circles
		Conic Sections
		Ellipses
		Hyperbolas
		Parabolas

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S	Statistics and Probability	
S-ID	Interpreting Categorical and Quantitative Data Summarize, represent, and interpret data on a single count or measurement variable.	
S-ID.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.	
		Applications with Standard Normal Distribution Hypothesis Testing Introduction to Normal Distributions Standard Deviation Statistical Inferences
S-IC	Making Inferences and Justifying Conclusions Understand and evaluate random processes underlying statistical experiments.	
S-IC.1	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	
		Hypothesis Testing Statistical Inferences
S-IC.2	Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation.	
		Binomial Distribution Determining Probabilities Expected Value Properties of Probability Distributions
	Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	
S-IC.3	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	
		Designing a Study
S-IC.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.	
		Statistical Inferences
S-IC.5	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	
		Binomial Distribution Hypothesis Testing

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S-IC.6	Evaluate reports based on data.	
		Hypothesis Testing
		Representing Data
		Statistical Inferences
S-MD	Using Probability to Make Decisions Use probability to evaluate outcomes of decisions. [Include more complex situations.]	
S-MD.6	Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).	
		Determining Probabilities
		Expected Value
S-MD.7	Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).	
		Expected Value