



Algebra II

TERM 1

Term 1 Dates	MS College and Career Readiness Standards	Core Academic Vocabulary/Resources
Week 1	N-RN.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. N-RN.2: Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Integer, rational, irrational, exponent Resources: Edgenuity & Teacher provided resources
Week 2	N-Q.2: Define appropriate quantities for the purpose of descriptive modeling.	Integer, rational, irrational, exponent Resources: Edgenuity & Teacher provided resources
Week 3	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. N-CN.2: Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	Complex number, imaginary number Resources: Edgenuity & Teacher provided resources
Week 4	N-CN.7 Solve quadratic equations with real coefficients that have complex solutions.	Complex number, imaginary number Resources: Edgenuity & Teacher provided resources
Week 5	A-SSE.2 Use the structure of an expression to identify ways to rewrite it.	Expression, equivalent, finite geometric series Resources: Edgenuity & Teacher provided resources
Week 6	A-SSE.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.	Remainder theorem, polynomial, zeros, factor, division Resources: Edgenuity & Teacher provided resources
Week 7	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.	Finite geometric series Resources: Edgenuity & Teacher provided resources
Week 8	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 $p(x)$.	Remainder theorem, polynomial, zeros, factor, division Resources: Edgenuity & Teacher provided resources

Week 9	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 (limit to 1st- and 2 nd degree polynomials).	Remainder theorem, polynomial, zeros, factor, division Resources: Edgenuity & Teacher provided resources
TERM 2		
Term 2 Dates	MS College and Career Readiness Standards	Core Academic Vocabulary/Resources
Week 10	A-APR.4 Prove polynomial identities and use them to describe numerical relationships. <i>For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.</i>	Polynomial Resources: Edgenuity & Teacher provided resources
Week 11	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.	Rational Expression, Polynomial Resources: Edgenuity & Teacher provided resources
Week 12	A-CED.1 Create equations and inequalities in one variable and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i>	Equation, Inequality Resources: Edgenuity & Teacher provided resources
Week 13	A-CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. <i>[Note this standard appears in previous courses with a slight variation in the standard language.]</i> Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.	Equation, inequality, variable, coordinates Resources: Edgenuity & Teacher provided resources
Week 14	A-REI.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. A-REI.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	Equation, solution Resources: Edgenuity & Teacher provided resources
Week 15	A-REI.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.	Quadratic formula Resources: Edgenuity & Teacher provided resources
Week 16	A-REI.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables	System of equations Resources: Edgenuity & Teacher provided resources

	A-REI.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. <i>For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.</i>	
Week 17	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.	Remainder theorem, polynomial, zeros, factor, division Resources: Edgenuity & Teacher provided resources
Week 18	F-IF.3 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	Remainder theorem, polynomial, zeros, factor, division Resources: Edgenuity & Teacher provided resources
Week 19	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. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i>	Remainder theorem, polynomial, zeros, factor, division Resources: Edgenuity & Teacher provided resources

TERM 3

Term 3 Dates	MS College and Career Readiness Standards	Core Academic Vocabulary/Resources
Week 20	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.	Remainder theorem, polynomial, zeros, factor, division Resources: Edgenuity & Teacher provided resources
Week 21	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. 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.	Remainder theorem, polynomial, zeros, factor, division Resources: Edgenuity & Teacher provided resources
Week 22	F-IF.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	Remainder theorem, polynomial, zeros, factor, division Resources:

	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 and decay.	Edgenuity & Teacher provided resources
Week 23	F-IF.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, say which has the larger maximum.	Remainder theorem, polynomial, zeros, factor, division Resources: Edgenuity & Teacher provided resources
Week 24	F-BF.1 Write a 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. <i>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.</i>	Remainder theorem, polynomial, zeros, factor, division Resources: Edgenuity & Teacher provided resources
Week 25	F-BF.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	Arithmetic sequence, geometric sequence Resources: Edgenuity & Teacher provided resources
Week 26	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. <i>Include recognizing even and odd functions from their graphs and algebraic expressions for them.</i>	Inverse function Resources: Edgenuity & Teacher provided resources
Week 27	F-BF.4 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.	Inverse function Resources: Edgenuity & Teacher provided resources
Week 28	F-LE.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).*	Linear, exponential Resources: Edgenuity & Teacher provided resources
Week 29	F-LE.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.*	Inverse function Resources: Edgenuity & Teacher provided resources
TERM 4		
Term 4 Dates	MS College and Career Readiness Standards	Core Academic Vocabulary/Resources
Week 30	F-LE.4 For exponential models, express as a logarithm the solution to $abct = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.	Inverse function Resources: Edgenuity & Teacher provided resources

Week 31	F-LE.5 Interpret the parameters in a linear or exponential function in terms of a context.*	Inverse function Resources: Edgenuity & Teacher provided resources
Week 32	F-TF.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	Radian measure, arc Resources: Edgenuity & Teacher provided resources
Week 33	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.	Unit circle Resources: Edgenuity & Teacher provided resources
Week 34	G-GPE.2 Derive the equation of a parabola given a focus and directrix.	Parabola Resources: Edgenuity & Teacher provided resources
Week 35	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.*	Standard deviation Resources: Edgenuity & Teacher provided resources
Week 36	S-ID.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. <i>Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.</i>	Quantitative Resources: Edgenuity & Teacher provided resources
Week 37	S-IC.1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population.*	Inference Resources: Edgenuity & Teacher provided resources