

Wyoming Department of Education Required Virtual Education Course Syllabus

Niobrara County School District # 1

Program Name	Wyoming Virtual Academy	Content Area	MA
Course ID	D-MTH-306AV1-K	Grade Level	9-12
Course Name	Summit Recovery Algebra 2-Semester 1	# of Credits	0.5
SCED Code	02056B0.5012	Curriculum Type	K12 Inc

COURSE DESCRIPTION

Offered over summer. Students must have taken Algebra 2 and failed in order to take this course. In this Summit Algebra 2 course, students build on their work with linear, quadratic, and exponential functions, and extend their repertoire to include polynomial, rational, radical, and trigonometric functions. Students also expand their ability to model situations and solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms.

The course covers sequences and series, probability distributions, and more advanced data analysis techniques.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
A.APR.C.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.
A.APR.D.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.
A.APR.E.4	Prove polynomial identities and use them to describe numerical relationships.
A.APR.F.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. (i.e. rewriting a rational expression as the quotient plus the remainder over divisor).
A.APR.F.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.
A.CED.G.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.

A.CED.G.3	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.
A.CED.G.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
A.REI.H.2	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
A.REI.I.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
A.REI.I.4a	Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions.
A.REI.I.4b	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 .
A.REI.J.6	Estimate solutions graphically and determine algebraic solutions to linear systems, focusing on pairs of linear equations in two variables.
A.REI.K.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.
A.REI.K.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.
A.SSE.A.1a	Interpret parts of an expression, such as terms, factors, and coefficients.
A.SSE.A.1b	Interpret complicated expressions by viewing one or more of their parts as a single entity.
A.SSE.A.2	Use the structure of an expression to identify ways to rewrite it.
A.SSE.B.3a	Factor a quadratic expression to reveal the zeros of the function it defines.
F.BF.E.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. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

F.IF.C.7a	Graph linear and quadratic functions and show intercepts, maxima, and minima.
F.IF.C.7c	Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
F.IF.C.8a	Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
F.LE.F.1a	Verify that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.
N.CN.D.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.D.2	Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
N.CN.F.7	Solve quadratic equations with real coefficients that have complex solutions.
N.CN.F.8	(+) Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.
N.CN.F.9	(+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.
N.RN.A.1	Explain how the meaning of the definition 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.A.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.
N.RN.B.3	Explain why the sum or product of rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.
S.IC.D.1	(+) Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
S.IC.D.2	(+) Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation.
S.IC.E.3	(+) Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
S.IC.E.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.

S.IC.E.5	(+) Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.
S.IC.E.6	(+) Evaluate reports based on data.
S.ID.A.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
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 the Empirical Rule, calculators, spreadsheets, and/or tables to estimate areas under the normal curve.
S.MD.H.1	(+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.
S.MD.H.2	(+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.
S.MD.H.3	(+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1: Probability Distributions Lesson 1: Exchange Ideas: Probability Distributions		Prepare for the course by previewing the course structure and key course components.
Unit 1: Probability Distributions Lesson 2: Probability Distributions	S.MD.H.1 S.MD.H.3	Determine whether a distribution represents a probability distribution. Represent probability distributions of discrete random variables in graphs. Represent probability distributions of discrete random variables in tables. Develop a theoretical probability distribution for a discrete random variable.

Unit 1: Probability Distributions Lesson 3: Interpret Probability Distributions	S.MD.H.1 S.MD.H.3	Determine the probability of an event using a graph for a discrete random variable. Determine the probability of an event using a probability distribution table for a discrete random variable. Interpret a probability distribution.
Unit 1: Probability Distributions Lesson 4: Binomial Distributions	S.MD.H.1 S.MD.H.2	Determine whether a variable has a binomial distribution. Interpret a binomial distribution. Create a binomial distribution table for a discrete random variable. Create a binomial distribution graph for a discrete random variable.
Unit 1: Probability Distributions Lesson 5: Discuss: Model vs. Experiment	S.MD.H.1 S.MD.H.2	Determine whether a variable has a binomial distribution. Interpret a binomial distribution. Create a binomial distribution table for a discrete random variable. Create a binomial distribution graph for a discrete random variable.
Unit 1: Probability Distributions Lesson 6: Your Choice	S.ID.A.3 S.ID.A.4 S.MD.H.1 S.MD.H.2 S.MD.H.3	Complete work in progress. Review prior lessons in the unit to prepare for the Unit Test. Post or respond to posts on the discussion board for the Exchange Ideas activity in this unit. Prepare for your state standardized test. Go on to the next lesson.
Unit 1: Probability Distributions Lesson 7: Continuous Random Variables	S.MD.H.1	Determine the probability of an event using a probability distribution histogram for a continuous random variable. Interpret a probability distribution.
Unit 1: Probability Distributions Lesson 8: The Normal Distribution	S.ID.A.3 S.ID.A.4	Determine whether a data set is normally distributed.

		Solve problems about normally distributed data using the 68-95-99.7 rule.
Unit 1: Probability Distributions Lesson 9: Standardize Data	S.ID.A.4	Convert raw scores to standard scores. Convert standard scores to raw scores.
Unit 1: Probability Distributions Lesson 10: Compare Scores	S.ID.A.4	Compare data sets using standard scores. Compare raw scores using standard scores.
Unit 1: Probability Distributions Lesson 11: Your Choice	S.ID.A.3 S.ID.A.4 S.MD.H.1 S.MD.H.2 S.MD.H.3	Complete work in progress. Review prior lessons in the unit to prepare for the Unit Test. Post or respond to posts on the discussion board for the Exchange Ideas activity in this unit. Prepare for your state standardized test. Go on to the next lesson.
Unit 1: Probability Distributions Lesson 12: The Standard Normal Curve	S.ID.A.4	Estimate areas under the standard normal curve.
Unit 1: Probability Distributions Lesson 13: Find Standard Scores	S.ID.A.4	Determine z-scores that relate to given areas under the standard normal curve.
Unit 1: Probability Distributions Lesson 14: Unit Review	S.ID.A.3 S.ID.A.4 S.MD.H.1 S.MD.H.2 S.MD.H.3	Use today's lesson time to prepare for the Unit Test. You may <ul style="list-style-type: none"> • Revisit Review activities located before each quiz in the unit. • Look at the Summary activities in each lesson. • Read through the Reference Guide pages linked in each lesson. Ask for help on any Practice problems you did not fully understand.
Unit 1: Probability Distributions Lesson 15: Unit Test	S.ID.A.3 S.ID.A.4 S.MD.H.1 S.MD.H.2 S.MD.H.3	Demonstrate knowledge on concepts in this unit.
Unit 2: Data Gathering and Analysis Lesson 1: Exchange Ideas: Data Gathering and Analysis	S.IC.E.3	Determine a reasonable way to collect a random sample for a specified survey. Determine a reasonable way to randomly assign subjects to groups in an experiment.

		<p>Determine whether a survey, an experiment, or an observational study would be the best way to gather data for a situation.</p> <p>Explain the differences between surveys, experiments, and observational studies.</p> <p>Explain why randomization may not apply to an observational study.</p> <p>Evaluate reports based on data.</p>
Unit 2: Data Gathering and Analysis Lesson 2: Sample and Population	S.IC.D.1 S.IC.E.3	<p>Distinguish between a sample and a population.</p> <p>Estimate a population mean using data from a sample.</p> <p>Estimate a population proportion using data from a sample.</p>
Unit 2: Data Gathering and Analysis Lesson 3: Statistics and Parameters	S.IC.D.1 S.IC.D.2 S.IC.E.3	<p>Determine the population and sample means from given contextual information.</p> <p>Determine the population and sample proportions from given contextual information.</p> <p>Distinguish between descriptive and inferential statistics.</p> <p>Distinguish between statistics and parameters.</p> <p>Determine a way to simulate choosing a sample, given the population proportion for a given characteristic.</p>
Unit 2: Data Gathering and Analysis Lesson 4: Extended Problems: Data Gathering and Uncertainty	S.IC.E.3	<p>Determine a reasonable way to collect a random sample for a specified survey.</p>
Unit 2: Data Gathering and Analysis Lesson 5: Your Choice	S.IC.D.1 S.IC.D.2 S.IC.E.3 S.IC.E.4 S.IC.E.5 S.IC.E.6	<p>Complete work in progress.</p> <p>Review prior lessons in the unit to prepare for the Unit Test.</p> <p>Post or respond to posts on the discussion board for the Exchange Ideas activity in this unit.</p> <p>Prepare for your state standardized test.</p> <p>Go on to the next lesson.</p>

Unit 2: Data Gathering and Analysis Lesson 6: Simulations		Explain whether a data-generating process seems fair, based on a probability model. Determine if differences between parameters in two treatments are significant using simulation results. Draw conclusions about population parameters using simulation results. Evaluate differences in two treatments by "rerandomizing" and analyzing the distribution of differences, via simulations.
Unit 2: Data Gathering and Analysis Lesson 7: Margin of Error	S. IC.4	Estimate a margin of error using half the range. Estimate a margin of error using a standard deviation. Solve problems involving point estimates, interval estimates, and margins of error.
Unit 2: Data Gathering and Analysis Lesson 8: Surveys, Experiments, Studies, and Reports	S. IC.E.3 S. IC.E.6	Determine a reasonable way to collect a random sample for a specified survey. Determine a reasonable way to randomly assign subjects to groups in an experiment. Determine whether a survey, an experiment, or an observational study would be the best way to gather data for a situation. Explain the differences between surveys, experiments, and observational studies. Explain why randomization may not apply to an observational study. Evaluate reports based on data.
Unit 2: Data Gathering and Analysis Lesson 9: Unit Review	S. IC.D.1 S. IC.D.2 S. IC.E.3 S. IC.E.4 S. IC.E.5 S. IC.E.6	Revisit Review activities located before each quiz in the unit. Look at the Summary activities in each lesson. Read through the Reference Guide pages linked in each lesson. Ask for help on any Practice problems you did not fully understand.

Unit 2: Data Gathering and Analysis Lesson 10: Unit Test	S.IC.D.1 S.IC.D.2 S.IC.E.3 S.IC.E.4 S.IC.E.5 S.IC.E.6	Demonstrate knowledge on concepts in this unit.
Unit 3: Systems of Linear Equations and Inequalities Lesson 1: Exchange Ideas: Systems of Linear Equations and Inequalities	A.REI.K.12	Graph a system of two linear inequalities in two variables. Write a system of linear inequalities in two variables, given its graph. Graph a system of three or more linear inequalities in two variables.
Unit 3: Systems of Linear Equations and Inequalities Lesson 2: Solve Systems of Two Linear Equations	A.REI.J.6 A.REI.K.11 A.REI.K.12	Solve a system of two linear equations in two variables using the substitution method. Solve a system of two linear equations in two variables using the linear combination method (without multiplication). Solve a system of two linear equations in two variables using the linear combination method (with multiplication).
Unit 3: Systems of Linear Equations and Inequalities Lesson 3: Solve Systems of Three Linear Equations	A.REI.J.6 A.REI.K.11 A.REI.K.12	Solve a system of two linear equations in two variables using the substitution method. Solve a system of two linear equations in two variables using the linear combination method (without multiplication). Solve a system of two linear equations in two variables using the linear combination method (with multiplication). Solve a system of three linear equations in three variables.
Unit 3: Systems of Linear Equations and Inequalities Lesson 4: Your Choice	A.CED.G.1 A.CED.G.3 A.REI.I.3 A.REI.J.6 A.REI.K.11 A.REI.K.12	Complete work in progress. Review prior lessons in the unit to prepare for the Unit Test. Post or respond to posts on the discussion board for the Exchange Ideas activity in this unit. Prepare for your state standardized test. Go on to the next lesson.

<p>Unit 3: Systems of Linear Equations and Inequalities Lesson 5: Inequalities in One Variable</p>	<p>A.CED.G.1 A.REI.I.3</p>	<p>Solve a multistep linear inequality with variables on one side. Solve a multistep linear inequality with variables on both sides. Represent the solution of a linear inequality in one variable on a graph. Represent inequalities in interval notation.</p>
<p>Unit 3: Systems of Linear Equations and Inequalities Lesson 6: Compound Inequalities</p>	<p>A.CED.G.1 A.REI.I.3</p>	<p>Solve problems by writing and solving linear inequalities in one variable. Solve a combined inequality that is a disjunction of two linear inequalities. Solve a combined inequality that is a conjunction of two linear inequalities. Represent the solution of a combined inequality in one variable on a graph. Represent inequalities in interval notation.</p>
<p>Unit 3: Systems of Linear Equations and Inequalities Lesson 7: Inequalities in Two Variables</p>	<p>A.REI.K.12</p>	<p>Graph a linear inequality in two variables. Write a linear inequality in two variables, given its graph.</p>
<p>Unit 3: Systems of Linear Equations and Inequalities Lesson 8: Systems of Linear Inequalities</p>	<p>A.REI.K.12</p>	<p>Graph a system of two linear inequalities in two variables. Write a system of linear inequalities in two variables, given its graph. Graph a system of three or more linear inequalities in two variables.</p>
<p>Unit 3: Systems of Linear Equations and Inequalities Lesson 9: Linear Programming</p>	<p>A.CED.G.3</p>	<p>Optimize an objective function, given a set of constraints. Graph a system of three or more linear inequalities in two variables.</p>
<p>Unit 3: Systems of Linear Equations and Inequalities Lesson 10: Applications of Linear Programming</p>	<p>A.CED.G.3</p>	<p>Represent a set of constraints with a system of inequalities. Determine whether solutions to systems of inequalities make sense in the real-world situations they represent. Optimize an objective function, given a set of constraints.</p>

Unit 3: Systems of Linear Equations and Inequalities Lesson 11: Unit Review	A.CED.G.1 A.CED.G.3 A.REI.I.3 A.REI.J.6 A.REI.K.11 A.REI.K.12	<p>Use today's lesson time to prepare for the Unit Test. You may</p> <ul style="list-style-type: none"> • Revisit Review activities located before each quiz in the unit. • Look at the Summary activities in each lesson. • Read through the Reference Guide pages linked in each lesson. <p>Ask for help on any Practice problems you did not fully understand.</p>
Unit 3: Systems of Linear Equations and Inequalities Lesson 12: Unit Test	A.CED.G.1 A.CED.G.3 A.REI.I.3 A.REI.J.6 A.REI.K.11 A.REI.K.12	<p>Demonstrate knowledge on concepts in this unit.</p>
Unit 4: Radicals and Complex Numbers Lesson 1: Exchange Ideas: Radicals and Complex Numbers	N.RN.B.3	<p>Simplify radical expressions whose radicands contain perfect square factors.</p>
Unit 4: Radicals and Complex Numbers Lesson 2: Square Roots	N.RN.B.3	<p>Simplify radical expressions whose radicands contain perfect square factors.</p> <p>Multiply radical expressions.</p> <p>Add and subtract radical expressions.</p>
Unit 4: Radicals and Complex Numbers Lesson 3: Simplify Radical Expressions	N.RN.B.3	<p>Simplify radical expressions whose radicands contain perfect square factors.</p> <p>Simplify radical expressions by rationalizing the denominator.</p> <p>Multiply radical expressions.</p> <p>Add and subtract radical expressions.</p> <p>Simplify radical expressions.</p>
Unit 4: Radicals and Complex Numbers Lesson 4: Fractional Exponents and Higher Roots	N.RN.A.1 N.RN.A.2	<p>Convert between rational exponent form and radical form.</p> <p>Simplify radical expressions with roots of three or greater.</p>
Unit 4: Radicals and Complex Numbers Lesson 5: Your Choice	N.CN.D.1 N.CN.D.2 N.RN.A.1 N.RN.A.2 N.RN.B.3	<p>Complete work in progress.</p> <p>Review prior lessons in the unit to prepare for the Unit Test.</p>

		<p>Post or respond to posts on the discussion board for the Exchange Ideas activity in this unit.</p> <p>Prepare for your state standardized test.</p> <p>Go on to the next lesson.</p>
Unit 4: Radicals and Complex Numbers Lesson 6: Imaginary Numbers	N.CN.D.1 N.CN.D.2	<p>Convert expressions with negative radicands to expressions with the imaginary number i.</p> <p>Simplify powers of i.</p> <p>Add and subtract imaginary numbers.</p> <p>Multiply imaginary numbers.</p>
Unit 4: Radicals and Complex Numbers Lesson 7: Complex Numbers	N.CN.D.1 N.CN.D.2	<p>Explain the parts of a complex number.</p> <p>Add and subtract complex numbers.</p> <p>Multiply an imaginary number and a complex number.</p> <p>Multiply two complex numbers.</p>
Unit 4: Radicals and Complex Numbers Lesson 8: Your Choice	N.CN.D.1 N.CN.D.2 N.RN.A.1 N.RN.A.2 N.RN.B.3	<p>Complete work in progress.</p> <p>Review prior lessons in the unit to prepare for the Unit Test.</p> <p>Post or respond to posts on the discussion board for the Exchange Ideas activity in this unit.</p> <p>Prepare for your state standardized test.</p> <p>Go on to the next lesson.</p>
Unit 4: Radicals and Complex Numbers Lesson 9: Unit Review	N.CN.D.1 N.CN.D.2 N.RN.A.1 N.RN.A.2 N.RN.B.3	<p>Use today's lesson time to prepare for the Unit Test. You may</p> <ul style="list-style-type: none"> • Revisit Review activities located before each quiz in the unit. • Look at the Summary activities in each lesson. • Read through the Reference Guide pages linked in each lesson. <p>Ask for help on any Practice problems you did not fully understand.</p>

Unit 4: Radicals and Complex Numbers Lesson 10: Unit Test	N.CN.D.1 N.CN.D.2 N.RN.A.1 N.RN.A.2 N.RN.B.3	Demonstrate knowledge on concepts in this unit.
Unit 5: Polynomials Lesson 1: Exchange Ideas: Polynomials	N.CN.F.7	<p>Solve a formula for a specific variable.</p> <p>Transform a quadratic equation into a perfect square equation by completing the square.</p> <p>Solve quadratic equations by taking the square root of each side.</p> <p>Solve quadratic equations by completing the square.</p> <p>Solve quadratic equations by using the quadratic formula.</p> <p>Solve equations in the form $x^2 + a = 0$, when $a > 0$.</p> <p>Solve quadratic equations with real coefficients that have complex solutions.</p>
Unit 5: Polynomials Lesson 2: Work with Polynomials	A.SSE.A.1a A.APR.C.1	<p>Determine whether an expression is a polynomial.</p> <p>Classify polynomials.</p> <p>Solve problems involving the closure properties of polynomials.</p> <p>Explain under which operations polynomials are closed.</p> <p>Add polynomials.</p> <p>Subtract polynomials.</p>
Unit 5: Polynomials Lesson 3: Multiply Polynomials	A.APR.C.1	<p>Multiply monomials.</p> <p>Multiply a polynomial by a monomial.</p> <p>Multiply two binomials.</p> <p>Multiply a binomial and a trinomial.</p> <p>Multiply two trinomials.</p>
Unit 5: Polynomials Lesson 4: Your Choice	A.APR.C.1 A.APR.E.4	Complete work in progress.

	A.REI.I.4a A.REI.I.4b A.SSE.A.1a A.SSE.A.2 A.SSE.B.3a N.CN.F.7 N.CN.F.8	<p>Review prior lessons in the unit to prepare for the Unit Test.</p> <p>Post or respond to posts on the discussion board for the Exchange Ideas activity in this unit.</p> <p>Prepare for your state standardized test.</p> <p>Go on to the next lesson.</p>
Unit 5: Polynomials Lesson 5: Factoring Patterns	A.SSE.A.2	<p>Factor an expression by factoring out the greatest common monomial factor.</p> <p>Factor a perfect square trinomial.</p> <p>Factor a difference of squares.</p> <p>Factor a quadratic trinomial ($a = 1$) into two binomials.</p> <p>Factor an expression using more than one factoring technique.</p> <p>Factor a sum or difference of cubes.</p>
Unit 5: Polynomials Lesson 6: More Factoring Patterns	A.APR.E.4	<p>Factor an expression by grouping.</p> <p>Factor an expression by factoring out the greatest common binomial factor.</p> <p>Factor a quadratic trinomial (a is not equal to 1) into two binomials.</p>
Unit 5: Polynomials Lesson 7: Solve Polynomial Equations	A.SSE.B.3a A.REI.I.3 A.REI.I.4b	<p>Determine the roots of polynomial equations given in factored form.</p> <p>Determine the roots of a polynomial equation by converting it to factored form.</p>
Unit 5: Polynomials Lesson 8: Your Choice	A.APR.C.1 A.APR.E.4 A.REI.I.4a A.REI.I.4b A.SSE.A.1a A.SSE.A.2 A.SSE.B.3a N.CN.F.7 N.CN.F.8	<p>Complete work in progress.</p> <p>Review prior lessons in the unit to prepare for the Unit Test.</p> <p>Post or respond to posts on the discussion board for the Exchange Ideas activity in this unit.</p> <p>Prepare for your state standardized test.</p> <p>Go on to the next lesson.</p>

Unit 5: Polynomials Lesson 9: Solve Quadratic Equations	N.CN.F.7	<p>Solve a formula for a specific variable.</p> <p>Transform a quadratic equation into a perfect square equation by completing the square.</p> <p>Solve quadratic equations by taking the square root of each side.</p> <p>Solve quadratic equations by completing the square.</p>
Unit 5: Polynomials Lesson 10: The Quadratic Formula	A.REI.I.4a A.REI.I.4b	<p>Solve quadratic equations by using the quadratic formula.</p> <p>Solve equations in the form $x^2+a=0$, when $a>0$</p> <p>Solve quadratic equations with real coefficients that have complex solutions.</p>
Unit 5: Polynomials Lesson 11: Factor Over the Complex Numbers	N.CN.F.8	<p>Factor expressions in the form $x^2 + a$, when $a > 0$.</p> <p>Factor expressions over the set of complex numbers.</p>
Unit 5: Polynomials Lesson 12: Unit Review	A.APR.C.1 A.APR.E.4 A.REI.I.4a A.REI.I.4b A.SSE.A.1a A.SSE.A.2 A.SSE.B.3a N.CN.F.7 N.CN.F.8	<p>Use today's lesson time to prepare for the Unit Test. You may</p> <ul style="list-style-type: none"> • Revisit Review activities located before each quiz in the unit. • Look at the Summary activities in each lesson. • Read through the Reference Guide pages linked in each lesson. <p>Ask for help on any Practice problems you did not fully understand.</p>
Unit 5: Polynomials Lesson 13: Unit Test	A.APR.C.1 A.APR.E.4 A.REI.I.4a A.REI.I.4b A.SSE.A.1a A.SSE.A.2 A.SSE.B.3a N.CN.F.7 N.CN.F.8	<p>Demonstrate knowledge on concepts in this unit.</p>

<p>Unit 6: Polynomial Functions Lesson 1: Exchange Ideas: Polynomial Functions</p>	<p>N.CN.F.9</p>	<p>Factor a polynomial function (with polynomial of degree three or higher), given a zero of the function.</p> <p>Factor a polynomial function (with polynomial of degree three or higher) by using the rational root theorem.</p> <p>Evaluate a polynomial function using the polynomial remainder theorem.</p> <p>Determine whether a linear binomial in the form $x-a$ is a factor of a polynomial function.</p> <p>Determine the zeros of a polynomial function (with polynomial of degree three or higher).</p>
<p>Unit 6: Polynomial Functions Lesson 2: Power Functions</p>	<p>F.IF.C.7a F.IF.C.7c F.BF.E.3 F.LE.F.1a</p>	<p>Describe the effect a given parameter has on a graph.</p> <p>Describe the end behavior of a polynomial function.</p> <p>Determine the degree of a polynomial function, given a table of values.</p> <p>Graph a function in the form $f(x) = ax^n$.</p> <p>Graph a power function.</p>
<p>Unit 6: Polynomial Functions Lesson 3: Polynomial Long Division</p>	<p>A.APR.F.6</p>	<p>Write the quotient of two polynomials as a quotient plus the remainder divided by the divisor.</p> <p>Divide two polynomials using long division.</p>
<p>Unit 6: Polynomial Functions Lesson 4: Synthetic Division</p>	<p>A.APR.F.6</p>	<p>Write the quotient of two polynomials as a quotient plus the remainder divided by the divisor.</p> <p>Divide two polynomials using synthetic division.</p>
<p>Unit 6: Polynomial Functions Lesson 5: Your Choice</p>	<p>A.APR.C.1 A.APR.D.3 A.APR.F.6 F.BF.E.3 F.IF.C.7a F.IF.C.7c F.IF.C.8a F.LE.F.1a N.CN.F.9</p>	<p>Complete work in progress.</p> <p>Review prior lessons in the unit to prepare for the Unit Test.</p> <p>Post or respond to posts on the discussion board for the Exchange Ideas activity in this unit.</p> <p>Prepare for your state standardized test.</p>

		Go on to the next lesson.
Unit 6: Polynomial Functions Lesson 6: The Polynomial Remainder Theorem	A.APR.C.1	Evaluate a polynomial function using the polynomial remainder theorem.
Unit 6: Polynomial Functions Lesson 7: Factors and Rational Roots	N.CN.F.9	<p>Factor a polynomial function (with polynomial of degree three or higher), given a zero of the function.</p> <p>Factor a polynomial function (with polynomial of degree three or higher) by using the rational root theorem.</p> <p>Determine whether a linear binomial in the form $x-a$ is a factor of a polynomial function.</p> <p>Determine the zeros of a polynomial function (with polynomial of degree three or higher).</p>
Unit 6: Polynomial Functions Lesson 8: Graph Polynomial Functions	A.APR.D.3 F.IF.C.7a F.IF.C.7c F.IF.C.8a	<p>Sketch the graph of a polynomial function (with polynomial of degree three or higher) by determining its zeros.</p> <p>Graph a polynomial function, given its equation in any form.</p>
Unit 6: Polynomial Functions Lesson 9: The Fundamental Theorem of Algebra	N.CN.F.9	<p>Determine the number of complex roots for a polynomial equation.</p> <p>Determine the number of complex zeroes for a polynomial function.</p> <p>Factor a polynomial of degree three or higher over the set of complex numbers.</p> <p>Illustrate the fundamental theorem of algebra using a quadratic polynomial.</p>
Unit 6: Polynomial Functions Lesson 10: Unit Review	A.APR.C.1 A.APR.D.3 A.APR.F.6 F.BF.E.3 F.IF.C.7a F.IF.C.7c F.IF.C.8a F.LE.F.1a N.CN.F.9	<p>Use today's lesson time to prepare for the Unit Test. You may</p> <ul style="list-style-type: none"> • Revisit Review activities located before each quiz in the unit. • Look at the Summary activities in each lesson. • Read through the Reference Guide pages linked in each lesson. <p>Ask for help on any Practice problems you did not fully understand.</p>

Unit 6: Polynomial Functions Lesson 11: Unit Test	A.APR.C.1 A.APR.D.3 A.APR.F.6 F.BF.E.3 F.IF.C.7a F.IF.C.7c F.IF.C.8a F.LE.F.1a N.CN.F.9	Demonstrate knowledge on concepts in this unit.
Unit 7: Radical and Rational Expressions Lesson 1: Exchange Ideas: Radical and Rational Expressions	A.SSE.A.1a A.SSE.A.1b A.APR.F.6	Explain how parts of an expression with multiple operations can be viewed as a single entity. Simplify the ratio of two monomials. Simplify rational expressions. Determine domain restrictions for a rational expression. Interpret parts of a rational expression within the context of the situation it represents.
Unit 7: Radical and Rational Expressions Lesson 2: Solve Radical Equations	A.REI.H.2	Solve a formula for a specific variable. Solve radical equations containing two radicals. Solve radical equations containing one radical. Explain how extraneous solutions may arise when solving radical equations.
Unit 7: Radical and Rational Expressions Lesson 3: Extended Problems: Extraneous Solutions	A.REI.H.2	Explain how extraneous solutions may arise when solving radical equations.
Unit 7: Radical and Rational Expressions Lesson 4: Rational Expressions	A.SSE.A.1a A.SSE.A.1b A.APR.F.6	Explain how parts of an expression with multiple operations can be viewed as a single entity. Simplify the ratio of two monomials. Simplify rational expressions. Determine domain restrictions for a rational expression.

		Interpret parts of a rational expression within the context of the situation it represents.
Unit 7: Radical and Rational Expressions Lesson 5: Multiply and Divide Rational Expressions	A.APR.F.7	<p>Multiply rational expressions when factoring is required.</p> <p>Multiply rational expressions when factoring is not required.</p> <p>Divide rational expressions when factoring is required.</p> <p>Divide rational expressions when factoring is not required.</p>
Unit 7: Radical and Rational Expressions Lesson 6: Add and Subtract Rational Expressions	A.APR.F.7	<p>Subtract rational expressions with unlike denominators when factoring is required.</p> <p>Subtract rational expressions with unlike denominators when factoring is not required.</p> <p>Subtract rational expressions with like denominators when factoring is required.</p> <p>Subtract rational expressions with like denominators when factoring is not required.</p> <p>Add rational expressions with unlike denominators when factoring is required.</p> <p>Add rational expressions with unlike denominators when factoring is not required.</p> <p>Add rational expressions with like denominators when factoring is required.</p> <p>Add rational expressions with like denominators when factoring is not required.</p>
Unit 7: Radical and Rational Expressions Lesson 7: Your Choice	A.APR.F.6 A.APR.F.7 A.CED.G.1 A.CED.G.4 A.REI.H.2 A.SSE.A.1a A.SSE.A.1b	<p>Complete work in progress.</p> <p>Review prior lessons in the unit to prepare for the Unit Test.</p> <p>Post or respond to posts on the discussion board for the Exchange Ideas activity in this unit.</p>

		<p>Prepare for your state standardized test.</p> <p>Go on to the next lesson.</p>
Unit 7: Radical and Rational Expressions Lesson 8: Simplify Complex Fractions	A.APR.F.7	<p>Simplify mixed quotients.</p> <p>Simplify complex fractions.</p> <p>Explain why rational expressions are closed under addition, subtraction, multiplication, and division.</p>
Unit 7: Radical and Rational Expressions Lesson 9: Solve Rational Equations	A.CED.G.1 A.CED.G.4 A.REI.H.2	<p>Solve a formula for a specific variable.</p> <p>Solve problems by writing and solving rational equations in one variable.</p> <p>Solve rational equations not in the general form of $ab = cd$.</p> <p>Solve rational equations in the general form of $ab = cd$.</p> <p>Explain how extraneous solutions may arise when solving rational equations.</p>
Unit 7: Radical and Rational Expressions Lesson 10: Unit Review	A.APR.F.6 A.APR.F.7 A.CED.G.1 A.CED.G.4 A.REI.H.2 A.SSE.A.1a A.SSE.A.1b	<p>Use today's lesson time to prepare for the Unit Test. You may</p> <ul style="list-style-type: none"> • Revisit Review activities located before each quiz in the unit. • Look at the Summary activities in each lesson. • Read through the Reference Guide pages linked in each lesson. <p>Ask for help on any Practice problems you did not fully understand.</p>
Unit 7: Radical and Rational Expressions Lesson 11: Unit Test	A.APR.F.6 A.APR.F.7 A.CED.G.1 A.CED.G.4 A.REI.H.2 A.SSE.A.1a A.SSE.A.1b	Demonstrate knowledge on concepts in this unit.