

# KEYSTONE ALGEBRA CURRICULUM

## Course 17905

This course is designed to complete the study of Algebra I. Mastery of basic computation is expected. The course will continue the development of skills and concepts necessary for students to succeed in upper level math and science courses by teaching students to approach problems in a logical and organized sequence of steps. Course content is aligned to Algebra I Keystone Anchors and begins with a review of integer operations, order of operations, evaluating expressions, solving one-step and multi-step equations, and working with functions. Students will progress to new topics that will include functions and their graphs, coordinate geometry, systems of linear equations and inequalities, exponents, polynomials, and data analysis and probability. Students will explore application problems that focus on developing problem solving skills. The graphing calculator will be introduced as a tool in exploring functions and graphs.

### KEYSTONE ALGEBRA OUTLINE:

Goals	Skills	Summative Assessments	Time Frame	Main Resources
<ul style="list-style-type: none"> <li>• Use estimation strategies in problem-solving situations.</li> <li>• Simplify expressions involving polynomials.</li> <li>• Analyze and/or use patterns or relations.</li> <li>• Interpret and/or use linear functions and their equations, graphs, or tables.</li> <li>• Describe, compute, and/or use the rate of change (slope) of a line.</li> <li>• Analyze and/or interpret data on a scatter plot.</li> <li>• Use measures of dispersion to describe a set of data.</li> <li>• Use data displays in problem-solving settings and/or to make predictions.</li> <li>• Apply probability to practical situations.</li> </ul>	<ul style="list-style-type: none"> <li>• Represent and/or use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, square roots, and exponents).</li> <li>• Apply number theory concepts to show relationships between real numbers in problem-solving settings.</li> <li>• Write, solve, and/or graph linear equations using various methods.</li> <li>• Write, solve, and/or graph systems of linear equations using various methods.</li> <li>• Write, solve, and/or graph linear inequalities using various methods.</li> <li>• Write, solve, and/or graph systems of linear inequalities using various methods.</li> <li>• Use exponents, roots, and/or absolute values to solve problems.</li> </ul>	<p>Mid-year and End of Year Benchmark Assessments, Keystone Algebra I Assessment.</p>	<p>1-year</p>	<p>Glencoe Algebra I ©2014</p>

## KEYSTONE ALGEBRA MAP:

TIME FRAME	BIG IDEAS	CONCEPTS	ESSENTIAL QUESTIONS	STANDARDS	OBJECTIVES	DIFFERENTIATION	ASSESSMENT
Chapter 1: Foundations for Algebra (Weeks 1-3)	<ul style="list-style-type: none"> <li>Mathematical relationships among numbers can be represented, compared, and communicated.</li> <li>Mathematical relationships can be represented as expressions and equations in mathematical situations.</li> <li>Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</li> <li>Real numbers are all the numbers on the number line: positives, negatives, and zero. Operations with real numbers are required for solving real-world problems.</li> <li>Exponents and powers are often used in sciences. Square roots are often used in physics and geometry.</li> <li>The order of operations are used so that everyone</li> </ul>	<ol style="list-style-type: none"> <li>Rounding and Estimating</li> <li>Variables and Expressions</li> <li>Adding and Subtracting Real Numbers</li> <li>Multiplying and Dividing Real Numbers</li> <li>Powers and Exponents</li> <li>Square Roots and Real Numbers</li> <li>Order of Operations</li> <li>Simplifying Expressions</li> <li>Introduction to Functions</li> </ol>	<ul style="list-style-type: none"> <li>How are relationships represented mathematically?</li> <li>What makes a tool and/or strategy appropriate for a given task?</li> <li>How precise do measurements and calculations need to be?</li> <li>What does it mean to estimate or analyze numerical expressions?</li> <li>When is it appropriate to estimate versus calculate?</li> <li>How can expressions and equations be used to quantify, solve, model and/or analyze mathematical situations?</li> <li>How can mathematics support effective communication?</li> <li>What clues tell you which operation to use?</li> <li>What is the sign of the product of two negative number? Two positive? One negative and one positive?</li> <li>What are integers? Rational numbers? Whole numbers?</li> </ul>	<p>CC.2.1.8.E.1 Distinguish between rational and irrational numbers using their properties.</p> <p>CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers.</p> <p>CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents</p> <p>CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.</p> <p>CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p> <p>.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions.</p>	<ul style="list-style-type: none"> <li>Round numbers.</li> <li>Estimate sums, differences, products, and quotients.</li> <li>Translate between words and algebra.</li> <li>Evaluate algebraic expressions.</li> <li>Add, subtract, multiply and divide real numbers.</li> <li>Evaluate expressions containing exponents.</li> <li>Evaluate expressions containing square roots.</li> <li>Classify numbers within the real number system.</li> <li>Use the order of operations to simplify expressions.</li> <li>Use the Commutative, Associative, and Distributive Properties to simplify expressions.</li> <li>Combine like terms.</li> <li>Graph ordered pairs in the coordinate plane.</li> <li>Graph functions from ordered pairs.</li> </ul>	<p>Extended time to work on all assessments.</p> <p>Use of calculators.</p> <p>Preferential seating.</p> <p>Typed notes to make it easier to follow along.</p>	<p>Quizzes</p> <p>Tests</p> <p>Informal assessments</p> <p>Homework</p>

	computing a numerical expression gets the same answer.		<p>Natural numbers? Irrational numbers?</p> <ul style="list-style-type: none"> <li>• How do you know which direction to move for each coordinate in an ordered pair?</li> <li>• How can you tell when an ordered pair will lie on the x-axis? y-axis?</li> </ul>				
Chapter 2: Equations (Weeks 4-6)	<ul style="list-style-type: none"> <li>• Equations are used in all areas of mathematics, as well as in other disciplines, solving them is an important foundational skill.</li> <li>• Some equations contain more than one operation or have variables on both sides of the equal sign.</li> <li>• You can solve a formula for a variable to make the formula more convenient for finding the information requested in a problem.</li> <li>• You can use ratios to compare quantities, or describe rates. Proportions are used in many fields, including construction, photography, and medicine.</li> <li>• Using percents is a way of comparing numbers. Percents are common in daily</li> </ul>	<ol style="list-style-type: none"> <li>1. Solving Equations by Adding or Subtracting</li> <li>2. Solving Equations by Multiplying or Dividing</li> <li>3. Solving Two-Step and Multi-Step Equations</li> <li>4. Solving Equations with Variables on Both Sides</li> <li>5. Solving for a Variable</li> <li>6. Rates, Ratios, and Proportions</li> <li>7. Application of Percents</li> <li>8. Percent Increase and Decrease</li> </ol>	<ul style="list-style-type: none"> <li>• What happens when you add or subtract the same amount on both sides of the equation?</li> <li>• How do you know when to add or subtract?</li> <li>• What is the inverse operation of addition? Subtraction? Multiplication? Division?</li> <li>• What is the product of any number and its reciprocal?</li> <li>• How is solving for a variable similar to solving an equation? How is it different?</li> <li>• What is a unit rate? Proportion?</li> <li>• What is a conversion factor?</li> <li>• How is finding the result of a percent increase similar to find the result of a percent decrease? How is it different?</li> </ul>	<p>CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.</p> <p>CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations.</p> <p>CC.2.2.HS.C.6 Interpret functions in terms of the situation they model.</p> <p>CC.2.2.HS.D.10 Represent, solve and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.</p> <p>CC.2.2.HS.D.8 Apply inverse operations to solve equations or formulas for a given variable.</p> <p>CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.</p>	<ul style="list-style-type: none"> <li>• Solve one-step equations in one variable by using addition, subtraction, multiplication or division.</li> <li>• Solve equations in one variable that contain more than one operation.</li> <li>• Solve equations in one variable that contain variable terms on both sides.</li> <li>• Solve a formula for a given variable.</li> <li>• Solve an equation in two or more variables for one of the variables.</li> <li>• Write and use ratios, rates, and unit rates.</li> <li>• Write and solve proportions.</li> <li>• Use proportions to solve problems involving geometric figures.</li> <li>• Use proportions and similar figures to measure objects indirectly.</li> <li>• Solve problems involving percents.</li> <li>• Use common applications of percents.</li> </ul>	<p>Extended time to work on all assessments.</p> <p>Use of calculators.</p> <p>Preferential seating.</p> <p>Typed notes to make it easier to follow along.</p>	<p>Quizzes</p> <p>Tests</p> <p>Informal assessments</p> <p>Homework</p>

	<p>life. For example, many statistics are reported as percents.</p> <ul style="list-style-type: none"> <li>• Percents have many common uses, such as calculating discounts, tips, sales tax, markups, and interest.</li> </ul>				<ul style="list-style-type: none"> <li>• Estimate with percents.</li> <li>• Find percent increase and decrease.</li> </ul>		
Chapter 3: Inequalities (Weeks 7-8)	<ul style="list-style-type: none"> <li>• Inequalities can be used to represent speed limits and height restrictions. The solutions to most inequalities are too numerous to list, so they are graphed.</li> <li>• Solving one-step inequalities prepares for solving multi-step inequalities.</li> <li>• Multi-step inequalities can be used to solve problems in geometry and consumer science.</li> <li>• Compound inequalities can be used to describe an acceptable range of values.</li> </ul>	<ol style="list-style-type: none"> <li>1. Graphing and Writing Inequalities</li> <li>2. Solving Inequalities by Adding or Subtracting</li> <li>3. Solving Inequalities by Multiplying or Dividing</li> <li>4. Solving Two-Step and Multi-Step Inequalities</li> <li>5. Solving Inequalities with Variables on Both Sides</li> <li>6. Solving Compound Inequalities</li> </ol>	<ul style="list-style-type: none"> <li>• How do you decide which way to shade the graph?</li> <li>• What does an empty or solid circle tell you? What does the direction of the arrow tell you?</li> <li>• How is solving inequalities similar to solving equations?</li> <li>• How is the solution of an inequality different from the solution of an equation?</li> <li>• What must be done to both sides of an inequality to make the inequality symbol change?</li> <li>• How can you tell whether the solution of an inequality is all real numbers or no solutions?</li> </ul>	<p>CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.</p> <p>CC.2.2.HS.D.10 Represent, solve and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.</p> <p>CC.2.2.HS.D.8 Apply inverse operations to solve equations or formulas for a given variable.</p> <p>CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.</p>	<ul style="list-style-type: none"> <li>• Identify solutions of inequalities in one variable.</li> <li>• Write and graph inequalities in one variable.</li> <li>• Solve one-step inequalities by using addition, subtraction, multiplication or division.</li> <li>• Solve inequalities that contain more than one operation.</li> <li>• Solve inequalities that contain variable terms on both sides.</li> <li>• Solve compound inequalities in one variable.</li> <li>• Graph solution sets of compound inequalities in one variable.</li> </ul>	<p>Extended time to work on all assessments.</p> <p>Use of calculators.</p> <p>Preferential seating.</p> <p>Typed notes to make it easier to follow along.</p>	<p>Quizzes</p> <p>Tests</p> <p>Informal assessments</p> <p>Homework</p>
Chapter 4: Functions (Weeks 10-12)	<ul style="list-style-type: none"> <li>• Interpreting the situations that graphed relationships represent prepares for understanding and graphing functions.</li> <li>• Functions can be used to represent</li> </ul>	<ol style="list-style-type: none"> <li>1. Graphing Relationships</li> <li>2. Relations and Functions</li> <li>3. Writing Functions</li> <li>4. Graphing Functions</li> <li>5. Scatter Plots and Trend Lines</li> <li>6. Arithmetic Sequences</li> </ol>	<ul style="list-style-type: none"> <li>• What are some phrases used to describe a graph that slants upwards? Downwards? Remains constant?</li> <li>• How do you know when to use discrete points instead of a</li> </ul>	<p>CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.</p> <p>CC.2.1.HS.F.3 Apply quantitative reasoning to choose and Interpret units</p>	<ul style="list-style-type: none"> <li>• Match simple graphs with situations.</li> <li>• Graph a relationship.</li> <li>• Identify functions.</li> <li>• Find the domain and range of relations and functions.</li> <li>• Identify</li> </ul>	<p>Extended time to work on all assessments.</p> <p>Use of calculators.</p> <p>Preferential seating.</p> <p>Typed notes to make it easier to follow along.</p>	<p>Quizzes</p> <p>Tests</p> <p>Informal assessments</p> <p>Homework</p>

	<p>real-world situations.</p> <ul style="list-style-type: none"> <li>• The graph of a function can be used to estimate values in many situations.</li> <li>• Scatter plots and trend lines are used in statistics to make predictions.</li> <li>• Arithmetic sequences are used to calculate terms in athletics, science, and number theory.</li> </ul>		<p>continuous line?</p> <ul style="list-style-type: none"> <li>• What is the domain? Range?</li> <li>• When are the domain and range of a relation a continuous interval of values? When are they distinct numbers?</li> <li>• What does a scatter plot look like when there is a positive correlation between the data set? Negative? No correlation?</li> <li>• What is a trend line? How do you determine where to draw the trend line?</li> <li>• What is an arithmetic sequence?</li> </ul>	<p>and scales in formulas, graphs and data displays.</p> <p>CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.</p> <p>CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p> <p>CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.</p> <p>CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.</p> <p>CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.</p> <p>CC.2.2.HS.C.5 Construct and compare linear, quadratic and exponential models to solve problems.</p> <p>CC.2.2.HS.C.6 Interpret functions in terms of the situation they model.</p> <p>CC.2.2.HS.D.10</p>	<p>independent and dependent variables.</p> <ul style="list-style-type: none"> <li>• Write an equation in function notation and evaluate a function for given input values.</li> <li>• Graph functions given a limited domain.</li> <li>• Graph functions given a domain of all real numbers.</li> <li>• Create and interpret scatter plots.</li> <li>• Use trend lines to make predictions. Recognize and extend an arithmetic sequence.</li> <li>• Find a given term of an arithmetic sequence.</li> </ul>		
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				<p>Represent, solve and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.</p> <p>CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.</p> <p>CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.</p> <p>CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data.</p>			
Chapter 5: Linear Functions (Weeks 13-16)	<ul style="list-style-type: none"> <li>Linear functions describe numerous real-world situations that involve constant rates of change, such as cost, distance, and speed.</li> <li>Students who understand slope and x- and y-intercepts will be able to graph linear functions with ease.</li> <li>Many real-world relationships involve direct variations, including relationships in science, cooking, and medicine.</li> <li>When a linear equation is</li> </ul>	<ol style="list-style-type: none"> <li>Identify Linear Functions</li> <li>Using Intercepts</li> <li>Rate of Change and Slope</li> <li>Slope Formula</li> <li>Slope-Intercept Form</li> <li>Point-Slope Form</li> <li>Slopes of Parallel and Perpendicular Lines</li> <li>Transforming Linear Functions</li> </ol>	<ul style="list-style-type: none"> <li>When is the graph of a line a function? When is it not a function?</li> <li>What is the relationship between change in x and change in y?</li> <li>What is the x-intercept? y-intercept?</li> <li>In a rate of change, the change in which variable goes in the numerator? The denominator?</li> <li>Which variable is dependent? Independent?</li> <li>What does a positive slope look like? Negative slope? Zero slope?</li> <li>Why is the slope of a vertical line undefined?</li> <li>In slope-intercept</li> </ul>	<p>CC.2.1.HS.F.3 Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs and data displays.</p> <p>CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p> <p>CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations.</p> <p>CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.</p>	<ul style="list-style-type: none"> <li>Identify linear functions and linear equations.</li> <li>Graph linear functions that represent real-world situations and give their domain and range.</li> <li>Find x- and y-intercepts and interpret their meanings in real-world situations.</li> <li>Use x- and y-intercepts to graph lines.</li> <li>Find rates of change and slopes.</li> <li>Relate a constant rate of change to the slope of a line.</li> <li>Find slope by using the slope formula.</li> <li>Write a linear equation in slope-intercept form.</li> </ul>	<p>Extended time to work on all assessments.</p> <p>Use of calculators.</p> <p>Preferential seating.</p> <p>Typed notes to make it easier to follow along.</p>	<p>Quizzes</p> <p>Tests</p> <p>Informal assessments</p> <p>Homework</p>

	<p>written in certain forms, relevant information about the line can be gathered from the equation.</p> <ul style="list-style-type: none"> <li>Slope can be used to confirm that geometric figures have parallel sides and right angles.</li> </ul>		<p>form what does m represent? b represent?</p> <ul style="list-style-type: none"> <li>How can you determine if two lines are parallel? Perpendicular?</li> </ul>	<p>CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.</p> <p>CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.</p> <p>CC.2.2.HS.C.4 Interpret the effects transformations have on functions and find the inverses of functions.</p> <p>CC.2.2.HS.C.5 Construct and compare linear, quadratic and exponential models to solve problems.</p> <p>CC.2.2.HS.C.6 Interpret functions in terms of the situation they model.</p> <p>CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data.</p>	<ul style="list-style-type: none"> <li>Graph a line using slope-intercept form.</li> <li>Graph a line and write a linear equation using point-slope form.</li> <li>Write a linear equation given two points.</li> <li>Identify and graph parallel and perpendicular lines.</li> <li>Write equations to describe lines parallel or perpendicular to a given line.</li> <li>Describe how changing slope and y-intercept affect the graph of a linear function.</li> </ul>		
<p>Chapter 6: Systems of Equations and Inequalities (Weeks 17-20)</p>	<ul style="list-style-type: none"> <li>Systems of linear equations are used to represent situations and solve problems involving consumer economics, finance, and geometry.</li> <li>Special systems of linear equations can</li> </ul>	<ol style="list-style-type: none"> <li>Solving Systems by Graphing</li> <li>Solving Systems by Substitution</li> <li>Solving Systems by Elimination</li> <li>Solving Special Systems</li> <li>Solving Linear Inequalities</li> <li>Solving Systems of Linear Inequalities</li> </ol>	<ul style="list-style-type: none"> <li>How do you know when an ordered pair is a solution of a system of linear equations?</li> <li>What does the intersection of the two lines represent?</li> <li>How do you find the solution of a system of linear equations by graphing? Substitution?</li> </ul>	<p>CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.</p> <p>CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.</p>	<ul style="list-style-type: none"> <li>Identify solutions of systems of linear equations in two variables</li> <li>Solve systems of linear equations in two variables by graphing.</li> <li>Solve systems of linear equations in two variables by substitution and elimination.</li> </ul>	<p>Extended time to work on all assessments.</p> <p>Use of calculators.</p> <p>Preferential seating.</p> <p>Typed notes to make it easier to follow along.</p>	<p>Quizzes</p> <p>Tests</p> <p>Informal assessments</p> <p>Homework</p>

	<p>represent real-world business situations in which there are no solutions or infinitely many solutions.</p> <ul style="list-style-type: none"> <li>• Linear inequalities are used in consumer economics and geometry. The shaded half-plane contains all possible solutions.</li> <li>• The graph of a system of linear inequalities can help business owners make decisions that are based on several constraints.</li> </ul>		<p>Elimination?</p> <ul style="list-style-type: none"> <li>• What is a dependent system? Independent system?</li> <li>• How do you know when an ordered pair is a solution of a system of linear inequalities?</li> <li>• What does the shaded region represent?</li> <li>• How do you find the solution of a system of linear inequalities by graphing? Substitution? Elimination?</li> </ul>	<p>CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.</p> <p>CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.</p> <p>CC.2.2.HS.C.6 Interpret functions in terms of the situation they model.</p> <p>CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.</p> <p>CC.2.2.HS.D.10 Represent, solve and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.</p> <p>CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.</p> <p>CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.</p> <p>CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.</p>	<ul style="list-style-type: none"> <li>• Compare and choose an appropriate method for solving systems of linear equations.</li> <li>• Solve special systems of linear equations in two variables.</li> <li>• Classify systems of linear equations and determine the number of solutions.</li> <li>• Graph and solve linear inequalities in two variables.</li> <li>• Graph and solve systems of linear inequalities in two variables.</li> </ul>		
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<p>Chapter 7: Exponents and Polynomials (Weeks 21-24)</p>	<ul style="list-style-type: none"> <li>Integer exponents are used to express measurements in biology and manufacturing.</li> <li>Powers of 10 and scientific notation can be used to read and write very large and very small numbers.</li> <li>Multiplication and division properties of exponents are used to solve problems involving scientific notation.</li> <li>Polynomials can be used to represent various measurements, including perimeter, area, and volume.</li> <li>Addition or subtraction of polynomials can be used to compare profit models.</li> <li>Add or subtract polynomials by combining like terms.</li> <li>Understand how polynomials are</li> </ul>	<ol style="list-style-type: none"> <li>Integer Exponents</li> <li>Powers of 10 and Scientific Notation</li> <li>Multiplication Properties of Exponents</li> <li>Division Properties of Exponents</li> <li>Polynomials</li> <li>Adding and Subtracting Polynomials</li> <li>Multiplying and Dividing Polynomials</li> <li>Special Products of Binomials</li> </ol>	<ul style="list-style-type: none"> <li>How do you decide which factors get moved to the other side of the fraction bar?</li> <li>What happens to factors with exponents of zero?</li> <li>What does a positive exponent represent? Negative?</li> <li>What is scientific notation?</li> <li>What is the distance formula?</li> <li>What operation is performed on the exponents when a power is raised to another power?</li> <li>What is the quotient of powers property?</li> <li>How can you make a negative exponent positive?</li> <li>If a monomial has more than one variable with an exponent, how do you determine its degree?</li> <li>Why is the degree of a constant always zero?</li> <li>What are like terms?</li> <li>What is a monomial? Binomial?</li> </ul>	<p>CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents</p> <p>CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.</p> <p>CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p> <p>CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.</p> <p>.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.</p> <p>CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.</p>	<ul style="list-style-type: none"> <li>Simplify and evaluate expressions containing zero and integer exponents.</li> <li>Evaluate and multiply by powers of 10.</li> <li>Convert between standard notation and scientific notation.</li> <li>Use multiplication and division properties of exponents to evaluate and simplify expressions.</li> <li>Classify polynomials and write polynomials in standard form.</li> <li>Evaluate polynomial expressions.</li> <li>Add and subtract polynomials.</li> <li>Multiply polynomials.</li> <li>Find special products of binomials.</li> </ul>	<p>Extended time to work on all assessments.</p> <p>Use of calculators.</p> <p>Preferential seating.</p> <p>Typed notes to make it easier to follow along.</p>	<p>Quizzes</p> <p>Tests</p> <p>Informal assessments</p> <p>Homework</p>

	multiplied before they can factor.		<p>Trinomial?</p> <ul style="list-style-type: none"> <li>Why is there no middle term with the difference of perfect squares?</li> </ul>	<p>CC.2.2.HS.C.5 Construct and compare linear, quadratic and exponential models to solve problems.</p> <p>CC.2.2.HS.C.6 Interpret functions in terms of the situation they model.</p> <p>CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.</p> <p>CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.</p> <p>CC.2.2.HS.D.4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.</p> <p>CC.2.2.HS.D.5 Use polynomial identities to solve problems.</p> <p>CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.</p> <p>CC.2.2.HS.D.8 Apply inverse operations to solve equations or formulas for a given variable.</p>			
Chapter 8: Factoring Polynomials	<ul style="list-style-type: none"> <li>The first step in factoring any</li> </ul>	1. Factors and Greatest Common Factors	<ul style="list-style-type: none"> <li>How can you determine whether</li> </ul>	<p>CC.2.1.HS.F.1 Apply and extend the properties of</p>	<ul style="list-style-type: none"> <li>Write the prime factorization of</li> </ul>	Extended time to work on all assessments.G178:	<p>Quizzes</p> <p>Tests</p>

<p>(Weeks 25-28)</p>	<p>polynomial is to look for the greatest common factor of the terms.</p> <ul style="list-style-type: none"> <li>Factoring a trinomial will help students determine where a parabola intersects the x-axis.</li> <li>Special products can be factored easily by using patterns. These factors can be used for finding perimeters and squares.</li> <li>Choosing the correct factoring method will help students factor correctly and easily.</li> </ul>	<ol style="list-style-type: none"> <li>Factoring by GCF</li> <li>Factoring <math>x^2+bx+c</math></li> <li>Factoring <math>ax^2+bx+c</math></li> <li>Factoring Special Products</li> <li>Choosing a Factoring Method</li> </ol>	<p>you have found all the factors of a number?</p> <ul style="list-style-type: none"> <li>What is GCF?</li> <li>How do you find a common factor?</li> <li>How do you know which factor will be positive and which will be negative?</li> <li>How is factoring a trinomial in the form <math>ax^2+bx+c</math> similar to factoring <math>x^2+bx+c</math>? How is it different?</li> <li>What are the steps for determining whether a trinomial is a perfect square trinomial?</li> <li>How do you check that a polynomial has been completely factored?</li> </ul>	<p>exponents to solve problems with rational exponents</p> <p>CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.</p> <p>CC.2.1.HS.F.7 Apply concepts of complex numbers in polynomial identities and quadratic equations to solve problems.</p> <p>CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.</p> <p>CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.</p> <p>CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.</p> <p>CC.2.2.HS.D.4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.</p> <p>CC.2.2.HS.D.5 Use polynomial identities to solve problems.</p> <p>CC.2.2.HS.D.6 Extend the knowledge</p>	<p>numbers.</p> <ul style="list-style-type: none"> <li>Find the GCF of monomials.</li> <li>Factor polynomials by using the greatest common factor.</li> <li>Factor quadratic trinomials of the form <math>x^2+bx+c</math>.</li> <li>Factor quadratic trinomials of the form <math>ax^2+bx+c</math>.</li> <li>Factor perfect-square trinomials.</li> <li>Factor the difference of two squares.</li> <li>Choose an appropriate method for factoring a polynomial.</li> <li>Combine methods for factoring a polynomial.</li> </ul>	<p>G185</p> <p>Use of calculators.</p> <p>Preferential seating.</p> <p>Typed notes to make it easier to follow along.</p>	<p>Informal assessments</p> <p>Homework</p>
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<p>Chapter 10: Data Analysis and Probability (Weeks 29-32)</p>	<ul style="list-style-type: none"> <li>Graphs are used to display data in an organized and visual way.</li> <li>Analysts compare data distributions to make decisions about business, sports, and weather.</li> <li>Misleading graphs might persuade a business manager to make poor decisions.</li> <li>Probability can be used for quality control and helping people determine the likelihood of winning a contest.</li> <li>Knowledge of whether events are independent is necessary for choosing the correct probability formula.</li> <li>Combinations and permutations</li> </ul>	<ol style="list-style-type: none"> <li>Organizing and Displaying Data</li> <li>Frequency and Histograms</li> <li>Data Distributions</li> <li>Misleading Graphs and Statistics</li> <li>Experimental Probability</li> <li>Theoretical Probability</li> <li>Independent and Dependent Events</li> <li>Combinations and Permutations</li> </ol>	<ul style="list-style-type: none"> <li>Why is data displayed in particular graphs?</li> <li>In a circle graph, what does the size of the sector indicate?</li> <li>How do you determine which type of graph to use?</li> <li>How do you decide what the stems should be for a stem-and-leaf plot?</li> <li>What are the measures of central tendency?</li> <li>Why is random sampling the best way to collect accurate data?</li> <li>What is probability used to determine?</li> <li>How are independent events different from dependent events?</li> <li>What is a combination? Permutation?</li> </ul>	<p>CC.2.1.HS.F.3 Apply quantitative reasoning to choose and Interpret units and scales in formulas, graphs and data displays.</p> <p>CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p> <p>CC.2.4.HS.B.1 Summarize, represent, and interpret data on a single count or measurement variable.</p> <p>CC.2.4.HS.B.2 Summarize, represent, and interpret data on two categorical and quantitative variables.</p> <p>CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data.</p> <p>CC.2.4.HS.B.4</p>	<ul style="list-style-type: none"> <li>Organize data in tables and graphs.</li> <li>Choose a table or graph to display data.</li> <li>Create stem-and-leaf plots.</li> <li>Create frequency tables and histograms.</li> <li>Describe the central tendency of data set.</li> <li>Create box-and-whisker plots.</li> <li>Recognize misleading graphs.</li> <li>Recognize misleading statistics.</li> <li>Determine the experimental probability of an event.</li> <li>Use experimental probability to make predictions.</li> <li>Determine the theoretical probability of an event.</li> <li>Convert between probabilities and odds.</li> <li>Find the probability of independent</li> </ul>	<p>Extended time to work on all assessments.</p> <p>Use of calculators.</p> <p>Preferential seating.</p> <p>Typed notes to make it easier to follow along.</p>	<p>Quizzes</p> <p>Tests</p> <p>Informal assessments</p> <p>Homework</p>

	<p>are used to determine the number of possibilities for phone numbers, passwords, and codes.</p>			<p>Recognize and evaluate random processes underlying statistical experiments.</p> <p>CC.2.4.HS.B.5 Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.</p> <p>CC.2.4.HS.B.6 Use the concepts of independence and conditional probability to interpret data.</p> <p>CC.2.4.HS.B.7 Apply the rules of probability to compute probabilities of compound events in a uniform probability model.</p>	<p>events.</p> <ul style="list-style-type: none"> <li>• Find the probability of dependent events.</li> <li>• Solve problems involving permutations.</li> <li>• Solve problems involving combinations.</li> </ul>		
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