

Algebra I

Time on Task: 3.5 hours per week

Course Philosophy

Mathematics demonstrates God’s order even in an abstract world, gradually building a base of knowledge and skills beginning with the simplest concepts to the more complex. In mathematics, the student will see the order and truth that God created. Just as the Bible says, “precept upon precept, line upon line....” (Isaiah 23:10) The sequential mastery of mathematical concepts is the primary objective.

Course Description

Foundation concepts for high school mathematics. As presented in Grades K-8, the basic understandings of number, operation, and quantitative reasoning; patterns, relationships, and algebraic thinking; geometry; measurement; and probability and statistics are essential foundations for all work in high school mathematics. Students will continue to build on this foundation as they expand their understanding through other mathematical experiences.

Goals and Objectives	Scope and Sequence	Spiritual Goals
<p>Texas Essential Knowledge and Skills (TEKS)</p> <p>§111.32. Algebra I (One Credit).</p> <p>(a) Basic understandings.</p> <p>(1) Foundation concepts for high school mathematics. As presented in Grades K-8, the basic understandings of number, operation, and quantitative reasoning; patterns, relationships, and algebraic thinking; geometry; measurement; and probability and statistics are essential foundations for all work in high school mathematics. Students will continue to build on this foundation as they expand their understanding through other mathematical experiences.</p> <p>(2) Algebraic thinking and symbolic reasoning. Symbolic reasoning plays a critical role in algebra; symbols provide powerful ways to represent mathematical situations and to express generalizations. Students use symbols in a variety of ways to study relationships among quantities.</p> <p>(3) Function concepts. A function is a fundamental mathematical concept; it expresses a special kind of</p>	<p>Arithmetic</p> <p>Whole Numbers</p> <ul style="list-style-type: none">• Round whole numbers <p>Operations with Whole Numbers</p> <ul style="list-style-type: none">• Add whole numbers• Subtract whole numbers• Multiply whole numbers• Divide whole numbers <p>Fractions</p> <ul style="list-style-type: none">• Add fractions• Add mixed numbers• Subtract fractions• Subtract mixed numbers• Multiply fractions• Multiply mixed numbers• Divide fractions• Divide mixed numbers <p>Decimal Numbers</p> <ul style="list-style-type: none">• Understand decimal numbers	<p>God’s intended purpose for mathematics:</p> <ol style="list-style-type: none">1. To teach the child that there is logic and order in arithmetic and that there is logic and order in God’s plan.2. To teach that God cares for numbers and has recorded many for our information.3. To teach that God commanded men to count, measure, and record information.4. To teach the child that God is concerned that we be accurate and orderly in our use of weights, measure, and numbers.5. To teach the child not to place too much confidence in the size.6. To teach the child the concept of measurement to express men’s failure and His plans for man.7. To develop skills in reasoning which

<p>relationship between two quantities. Students use functions to determine one quantity from another, to represent and model problem situations, and to analyze and interpret relationships.</p> <p>(4) Relationship between equations and functions. Equations and inequalities arise as a way of asking and answering questions involving functional relationships. Students work in many situations to set up equations and inequalities and use a variety of methods to solve them.</p> <p>(5) Tools for algebraic thinking. Techniques for working with functions and equations are essential in understanding underlying relationships. Students use a variety of representations (concrete, pictorial, numerical, symbolic, graphical, and verbal), tools, and technology (including, but not limited to, calculators with graphing capabilities, data collection devices, and computers) to model mathematical situations to solve meaningful problems.</p> <p>(6) Underlying mathematical processes. Many processes underlie all content areas in mathematics. As they do mathematics, students continually use problem-solving, language and communication, and reasoning (justification and proof) to make connections within and outside mathematics. Students also use multiple representations, technology, applications and modeling, and numerical fluency in problem-solving contexts.</p>	<ul style="list-style-type: none"> • Order decimal numbers • Round repeating decimal numbers • Add and subtract decimal numbers • Multiply and divide decimal numbers • Understand and use scientific notation <ul style="list-style-type: none"> • For large and small numbers • With addition of exponents • In multiplication • In division <p>Graphs</p> <p>Graphs on the Coordinate Plane</p> <ul style="list-style-type: none"> • Define <i>axes</i>, <i>coordinates</i>, <i>quadrants</i>, and <i>origin</i> • Recognize and plot ordered pairs • Graph linear equations <ul style="list-style-type: none"> • Equation of a line • By substitution • To solve systems of equations • Finding slopes • Slope formula • <i>Y</i>-intercept • <i>Vertical and horizontal lines</i> • Parallel lines • Using slope-intercept form • Given two ordered 	<p>reveal truth.</p> <ol style="list-style-type: none"> 8. To understand that God has given man the ability to observe reality. 9. To understand that God has given man the ability to explore and to formulate relationships. 10. To understand that human reasoning is a reflection of the divine. 11. To appreciate the structure, form, and beauty of God’s creation. 12. To appreciate the complexity and precision of God’s creation 13. To improve the student’s reasoning skills to help hi think less like the world and more like God. 14. To cultivate preciseness in Calculations and reasoning powers. 15. To develop an appreciation for correctness of procedure and accuracy in dealing with facts. 16. To make him aware of his own limitations and need to depend upon the Lord for understanding. 17. To develop skills in thrift and good stewardship to prepare him for successful living in the world. <p>Biblical Integration Truth Statements</p> <ol style="list-style-type: none"> 1. <i>What is prime reality, the really real?</i> God exists and is the ultimate reality. (Psalm 90:2, Revelation 22:13) <ol style="list-style-type: none"> a. God designed, created, and sustains His creation. (Genesis 1:1-31) b. God is good, holy, and loving.
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	<p>pairs</p> <ul style="list-style-type: none"> • Given slope • Consistent, inconsistent, and dependent • Graph circles, ellipses, hyperbolas, and parabolas <p>Number Sets</p> <p>Sets</p> <ul style="list-style-type: none"> • Use set notation • Distinguish between finite and infinite • Understand set membership • Represent subsets of the real numbers symbolically • Identify subsets <p>Real Numbers</p> <ul style="list-style-type: none"> • Classify the real numbers <ul style="list-style-type: none"> • Natural (counting) numbers and whole numbers • Integers, rational numbers, and irrational numbers • Prime and composite numbers • Compute sums, products, differences, and quotients of decimal numbers • Perform operations with integers <ul style="list-style-type: none"> • Addition • Subtraction 	<p>(Luke 18:19, 1 John 4:16, 1 Peter 1:16, Psalm 145:12)</p> <ul style="list-style-type: none"> c. God is omniscient – all knowing. (Romans 11:33-36, Psalm 147:5) d. God is sovereign – nothing is beyond His ultimate interest, control, and authority. (Daniel 4:25) e. God is personal and also triune- He is coequally and coeternally God the Father, God the Son, Jesus, and God the Holy Spirit. (Hebrews 1:3) <p>2. <i>What is the nature of external reality, that is, the world around us?</i></p> <ul style="list-style-type: none"> a. God is the source of everything and created the universe out of nothing. (Genesis 1:1) b. The universe was created by God to be orderly. (Isaiah 45:18, Psalm 147:4) c. God is constantly involved in the unfolding pattern of the ongoing operation of the universe. (Psalm 24:1-2, Psalm 32:13-15) d. The universe reflects His glory. (Psalm 8:1, Psalm 19:1) <p>3. <i>What is a human being?</i></p> <ul style="list-style-type: none"> a. God created humans to know Him intimately and to have a loving relationship with Him. (Psalm 100:3) b. Human beings are created in the image of God with the capacity to choose. (Genesis 1:27, Proverbs 8:10) c. Adam and Eve chose
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	<ul style="list-style-type: none"> • Multiplication • Division • Symbols of inclusion <ul style="list-style-type: none"> • Absolute value • Identifying negative numbers • Opposites with multiple signs • Within order of operations • Parentheses • Parentheses, braces, and brackets • Understand elementary number theory <ul style="list-style-type: none"> • Prime and composite numbers • Find least common multiples • Find reciprocals • Find greatest common factors • Understand inverse operations • Know the properties of real numbers <ul style="list-style-type: none"> • Chart of properties • Commutative property of addition and multiplication • Associative property of addition and multiplication • Distributive property • Additive inverse • Multiple inverse • Additive identity • Multiple identity 	<p>disobedience and brought death to themselves and sin entered the world. (Romans 5:12)</p> <ul style="list-style-type: none"> d. All human beings have a choice and all have chosen sin that brings separation from God. (Romans 3:23) e. Sin is rebellion against God's wishes and ways and this destroys our relationship with God. (Romans 8:7-8) f. God provides a way back to Himself through the death of His son Jesus (the second person of the Trinity), on the cross. (John 3:16, Romans 6:23) g. Human beings must respond to God with repentance of our sins, receiving forgiveness, and accepting Jesus as our Savior. (Romans 10:9-10) <p>4. <i>What happens to a person at death?</i></p> <ul style="list-style-type: none"> a. For each person death is either the gate to life with God and His people or the gate to eternal separation from God. (1 Corinthians 50:52) b. After death, your soul will continue to exist in an eternal way and there is a final judgment by God. (Revelation 20:12) c. Everyone chooses to honor and love Him by accepting Jesus as our Lord and Savior or makes a choice to reject Jesus and grasp for self-fulfillment and personal glory. (Romans 6:23) d. Those who received Jesus as
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	<ul style="list-style-type: none"> • Multiplicative property <ul style="list-style-type: none"> • Of zero • Of -1 • Of 1 • Of equality • Additive Property <ul style="list-style-type: none"> • Of zero • Of equality <p>Measurement</p> <p>English Measurement</p> <ul style="list-style-type: none"> • Know U.S. Customary units of length <p>Conversion by Unit Multipliers</p> <ul style="list-style-type: none"> • Convert within English system <ul style="list-style-type: none"> • In./ft, ft/yd, ft/mi • Multiple unit multipliers • Volume • Area • Convert within metric system <ul style="list-style-type: none"> • Cm/m, km/m • Multiple unit multipliers • Volume • Convert between English and metric units <ul style="list-style-type: none"> • Length • Area • Volume <p>Ratio, Proportion, Percent, and Rate</p> <p>Ratio</p> <ul style="list-style-type: none"> • Solve ratio word problems • Solve rate problems 	<p>Savior will spend eternity in Heaven with God. (Philippians 4:10-21)</p> <p>e. Those who rejected Jesus as Savior will spend eternity in Hell without God. (Hebrews 10:26-27)</p> <p>5. Why is it possible to know anything at all?</p> <p>a. Human beings can both know the world around them and God Himself because God has built within them the capacity to do so and because He takes an active role in communicating with them. (John 16:13)</p> <p>b. God's own intelligence is the basis of human intelligence. Knowledge is possible because there is something to be known (God and His creation) and someone to know (God and human beings made in His image). (Genesis 1:27)</p> <p>c. God reveals, Himself to us in two basic ways: by general revelation and by special revelation. (Exodus 3:2, Psalm 19:1-4)</p> <p>d. In general revelation, God speaks through the creation of the universe and through His word, the Bible. (2 Samuel 22:31, Psalm 19:1)</p> <ul style="list-style-type: none"> ➤ The Bible is internally consistent and unified in its principles and claims. ➤ There is tremendous
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	<ul style="list-style-type: none"> • Solve advanced ratio problems involving totals <p>Proportion</p> <ul style="list-style-type: none"> • Cross multiply to solve proportions <p>Percent</p> <ul style="list-style-type: none"> • Find percents of numbers • Use the percent equation • Solve percent word problems • Visualize percents using diagrams • Use percents greater than one hundred • Solve percent increase/decrease problems <p>Rate</p> <ul style="list-style-type: none"> • Solve uniform motion problems <p>Exponents</p> <ul style="list-style-type: none"> • Know order of operations with exponents • Evaluate expressions with exponents • Simplify powers of fractions • Know the product theorem for exponents • Evaluate powers of negative bases • Use negative exponents • Solve equations with exponents • Use zero as an exponent 	<p>coherence across the many authors and centuries during which the various books were written and in which its stories unfold.</p> <ul style="list-style-type: none"> ➤ It is relevant to all the cultures of the world <p>e. Special revelation is God revealing Himself through supernatural ways. Jesus Christ is the ultimate special revelation. He showed us what God is like more fully than any other form of revelation can. Because Jesus was also completely human, he spoke more clearly to us than any other form of revelation can. (John 14:7)</p> <p>6. <i>How do we know what is right and wrong?</i></p> <ul style="list-style-type: none"> a. Ethics or the knowledge of right and wrong is based on the character of God as good (holy and loving). (Psalm 33:4) b. There is an absolute standard by which all moral judgments are measured and God Himself – His character of goodness (holiness and love) – is the standard. (1 Samuel 2:3) c. As a result of sin, morally, we have become less able to discern good and evil and less able to know God as He truly is. (Proverbs 1:7) d. God has revealed His standard in the various laws and principles
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	<ul style="list-style-type: none"> • Know the quotient rule for exponents • Know the power theorem for exponents • Use the y^x calculator key • Understand exponential increase and decrease <p>Roots</p> <ul style="list-style-type: none"> • Find square roots, cube roots, and fourth roots • Know order of operations with roots • Evaluate expressions with roots • Take roots of negative numbers • Know the product of square roots rule • Add radical expressions • Multiply radical expressions • Find roots of large numbers • Solve radical equations • Know the quotient theorem for roots <p>Statistics and Probability</p> <p>Probability</p> <ul style="list-style-type: none"> • Use counting techniques to compute probability <ul style="list-style-type: none"> • Simple probability • Independent events • Product of probabilities <p>Statistics</p> <ul style="list-style-type: none"> • Use and construct stem-and-leaf plots • Use and construct 	<p>expressed in the Bible. (Psalm 111:10)</p> <ul style="list-style-type: none"> ➤ He has dictated absolute moral truth to us. ➤ Every truth must conform to Biblical principles. ➤ Every choice must reflect God’s moral truth. ➤ We must promote, defend, and teach these truths to others. <p>7. <i>What is the meaning of human history?</i></p> <ol style="list-style-type: none"> a. History is a meaningful sequence of events leading to the fulfillment of God’s purposes for humanity. (Psalm 22:27-28, Psalm 47:3) b. History is going somewhere, directed toward a known end. (Matthew 25:34) c. History is a form of revelation, not only does God reveal Himself in history, but the very sequence of events is revelation. (Psalm 33:13-14, Psalm 47:9) d. History has meaning because God is behind all events, not only sustaining all things by His powerful word but also in all things working for the good of those who love Him. (Psalm 40:5, Romans 8:28) <p><i>What should our response be to God?</i></p> <p><i>What were we made for?</i></p> <p>We were made to Love – Matthew 22:37, Worship – Romans 12:1,</p>
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	<p>histograms</p> <ul style="list-style-type: none"> • Use and construct box-and-whisker plots • Compute measures of central tendency • Find averages <ul style="list-style-type: none"> • Overall • Weighted <p>Expressions</p> <p>Simplifying Expressions</p> <ul style="list-style-type: none"> • Combine like terms <ul style="list-style-type: none"> • Simple • With exponents • With negative exponents • Simplify exponential expressions <ul style="list-style-type: none"> • With exponentials and radicals/power rule • With signed numbers <ul style="list-style-type: none"> • Explanation • Evaluation with signed numbers • Multiplication and division • Distributive property and negative exponents • Evaluate expressions with substitution <ul style="list-style-type: none"> • For variables • With symbols of inclusion • With signed numbers • With signed numbers and symbols of inclusion • Simplify expressions 	<p>Obey – 2 John 6, and Give Glory – Psalm 96:3.</p>
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	<p>using</p> <ul style="list-style-type: none">• Distributive property• Order of operations<ul style="list-style-type: none">• With fractions• With symbols of inclusion• Reduce expressions by common factor• Find the least common multiple of expressions• Find the greatest common factor of expressions• Simplify radical expressions<ul style="list-style-type: none">• Addition• Multiplication• Simplify polynomial expressions<ul style="list-style-type: none">• Monomials• Binomials<ul style="list-style-type: none">• Difference of two squares• Sum and difference of two cubes• Trinomials<ul style="list-style-type: none">• Simple factoring• Common factors• Common factor sums• Lead coefficients greater than one• Degrees of polynomials• Addition of polynomials• Multiplication of polynomials	
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	<ul style="list-style-type: none"> • Division of polynomials <ul style="list-style-type: none"> • Simple • Missing term in dividend • Factoring by grouping • Simplify rational expressions <ul style="list-style-type: none"> • Multiplication • Addition • Factoring <ul style="list-style-type: none"> • Before multiplication • Before addition • Division • Denominators <ul style="list-style-type: none"> • Factoring • Rationalizing <ul style="list-style-type: none"> • By multiplication by radical • Simplify complex fractions <ul style="list-style-type: none"> • Denominator-numerator same-quality rule • Multiplicative property of equality • Additive Property of equality • Advanced <p>Equations Simplifying and Solving Equations</p> <ul style="list-style-type: none"> • Define equations and basic rules <ul style="list-style-type: none"> • Simple • Conditional 	
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	<ul style="list-style-type: none">• Equivalent• Addition and subtraction rules• Multiplication and division rules• Use the fractional-part-of-a-number equation• Solve abstract equations• Use the decimal-part-of-a-number equation• Solve equations with mixed numbers• Use the percent equation• Solve multiple-step equations<ul style="list-style-type: none">• Using two rules• Format• Variables on each side of equals sign• Two-step• Multiple terms• Multivariable abstract• Solve equations that have negative coefficients• Solve equations that have symbols of inclusion• Solve equations using distributive property• Translate word phrases into algebraic expressions• Translate word sentences into algebraic equations• Solve equations involving variation	
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- Direct and inverse
- Squared
- Solve rational equations
- Solve radical equations
- Linear Equations**
- Find equations of lines
 - Using slope-intercept form
 - Given two points
 - Parallel to given lines
 - With given slopes
 - Finding slopes
 - Horizontal and vertical lines
 - Slope formula
 - Distance formula
- Graph linear equations
 - Simple
 - Rearranging before graphing
 - For solution
 - Slope-intercept method
- Solve two equations in two unknowns
 - Substituting
 - For variable
 - One variable for another variable
 - Rearranging before substitution
 - Subscripted variables
 - With fractions and decimal numbers
 - Using linear combination (elimination)

	<ul style="list-style-type: none"> • Elimination of a variable • Subscripted variables • With fractions and decimal numbers • By graphing <ul style="list-style-type: none"> • Simple • Consistent, inconsistent, and dependent equation <p>Quadratic Equations</p> <ul style="list-style-type: none"> • Solve by factoring • Use difference of two squares theorem • Complete the square • Use the quadratic formula <p>Other Types of Equations</p> <ul style="list-style-type: none"> • Solve exponential growth problems • Find compound interest with calculator • Find roots of equations <ul style="list-style-type: none"> • Using quadratic formula • Solve equations with applications <ul style="list-style-type: none"> • Simple and compound interest • Coin problems • Explore nonlinear equations <ul style="list-style-type: none"> • Parabolas <p>Algebraic Skills Understanding Functions</p>	
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- Define *domain*, *range*, *independent variable*, and *dependent variable*
- Use function notation
- Use the vertical line test
- Represent functions as ordered pairs

Trigonometry and Logarithms

Lines, Points, Segments, and Planes

- Identify lines
 - Intersecting
 - Parallel
- Identify points and find distances between points
- Identify segments
 - Characteristics
- Identify planes and planes in space

Angles

- Identify vertices of angles
- Identify kinds of angles
 - Right, acute, straight, and obtuse angles

Polygons

- Classify polygons
 - Convex and concave
 - Equilateral and equiangular
 - By number of sides
 - Triangles
 - Quadrilaterals
 - Inscribed
 - Squares

	<ul style="list-style-type: none">• Trapezoids• Parallelograms• Rhombuses• Rectangles• Pentagons• Hexagons• Understand regularity of polygons• Translate, rotate, and reflect polygons• Identify vertices of polygons• Draw diagonals of polygons <p>Circles</p> <ul style="list-style-type: none">• Identify parts of circles<ul style="list-style-type: none">• Radii and diameters• Use degree measures <p>Triangles</p> <ul style="list-style-type: none">• Classify triangles<ul style="list-style-type: none">• Right, obtuse, acute, scalene, isosceles, and equilateral• Find measures of angles <p>Geometric Solids</p> <ul style="list-style-type: none">• Identify cylinders and prisms• Identify circular and right circular cones• Identify rectangular and square pyramids• Identify spheres <p>Perimeter and Circumference</p> <ul style="list-style-type: none">• Compute perimeters of shapes• Define π	
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- Compute circumferences
 - Circles
 - Semicircles

Area

- Find areas of polygons
 - Rectangles and squares
 - Triangles
 - Parallelograms and trapezoids
- Find areas of complex shapes
 - Made of two or more polygons
 - Made of polygons and semicircles
- Find areas of circles, sectors, and semicircles

Surface Area and

Volume

- Find surface areas of geometric solids
 - Right circular cylinders
 - Triangular prisms and rectangular pyramids
 - Circular cones
 - Spheres
 - Complex shapes as the base
- Find volumes of geometric solids
 - Right cylinders and prisms
 - Complex shapes as the base
 - Cones, pyramids, and spheres

<p>(b) Knowledge and skills.</p> <p>(1) Foundations for functions. The student understands that a function represents a dependence of one quantity on another and can be described in a variety of ways.</p> <p><i>The student is expected to:</i></p> <ul style="list-style-type: none"> (A) describe independent and dependent quantities in functional relationships; (B) gather and record data and use data sets to determine functional relationships between quantities; (C) describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations; (D) represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities; and (E) interpret and make decisions, predictions, and critical judgments from functional relationships. <p>(2) Foundations for functions. The student uses the properties and attributes of functions.</p> <p><i>The student is expected to:</i></p> <ul style="list-style-type: none"> (A) identify and sketch the general forms of linear ($y = x$) and quadratic ($y = x^2$) parent functions; (B) identify mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete; 	<p>Pythagorean Theorem</p> <ul style="list-style-type: none"> • Find side lengths • Graph points to find distance <p>Correlation with TEKS</p> <p><u>Saxon Algebra I</u> Saxon/Houghton Mifflin Harcourt Company Student ISBN 1-56577-134-6 Teacher ISBN 1-56577-135-4</p> <p>Lessons 50, 70, 81</p> <p>Lessons 45, 85, 120</p> <p>Lessons 32, 37, 39, 58, 70, 79, 83, 89, 90, 92, 94, 99, 113, 117</p> <p>Lessons 23, 30, 32, 37, 38, 39, 46, 75, 78, 83, 89, 90, 94, 99, 113, 117</p> <p>Lessons 23, 30, 32, 37, 38, 39, 46, 75, 79, 83, 89, 90, 94, 99, 113, 117</p> <p>Lessons 75, 88, 95, 110</p> <p>Lessons 64, 82</p>	
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<p>(C) interpret situations in terms of given graphs or creates situations that fit given graphs; and</p> <p>(D) collect and organize data, make and interpret scatterplots (including recognizing positive, negative, or no correlation for data approximating linear situations), and model, predict, and make decisions and critical judgments in problem situations.</p> <p>(3) Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. <i>The student is expected to:</i></p> <p>(A) use symbols to represent unknowns and variables; and</p> <p>(B) look for patterns and represent generalizations algebraically.</p> <p>(4) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. <i>The student is expected to:</i></p> <p>(A) find specific function values, simplify polynomial expressions, transform and solve equations, and factor as necessary in problem situations;</p> <p>(B) use the commutative, associative, and distributive properties to simplify algebraic expressions; and</p> <p>(C) connect equation notation with function notation, such as $y = x + 1$ and $f(x) = x + 1$.</p> <p>(5) Linear functions. The student understands that linear functions can be represented in different ways and translates among their various representations. <i>The student is expected to:</i></p> <p>(A) determine whether or not given situations can be represented by linear functions;</p> <p>(B) determine the domain and range for linear functions in</p>	<p>Lessons 75, 88, 110, 115</p> <p>Textbook 8/7</p> <p>Lessons 30, 79, 83, 89, 92, 94, 99</p> <p>Lessons 30, 76</p> <p>Lessons 12, 14, 17, 18, 19, 22, 25, 26, 27, 28, 30, 35, 36, 40-44, 48-55, 59, 66-68, 72, 76-79, 82-84, 86-99, 101-109, 113, 118</p> <p>Lessons 5, 17</p> <p>Lesson 82</p> <p>Lessons 51, 75</p> <p>Lesson 82</p>	
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<p>inequalities using concrete models, graphs, and the properties of equality, select a method, and solve the equations and inequalities; and</p> <p>(C) interpret and determine the reasonableness of solutions to linear equations and inequalities.</p> <p>(8) Linear functions. The student formulates systems of linear equations from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</p> <p><i>The student is expected to:</i></p> <p>(A) analyze situations and formulate systems of linear equations in two unknowns to solve problems;</p> <p>(B) solve systems of linear equations using concrete models, graphs, tables, and algebraic methods; and</p> <p>(C) interpret and determine the reasonableness of solutions to systems of linear equations.</p> <p>(9) Quadratic and other nonlinear functions. The student understands that the graphs of quadratic functions are affected by the parameters of the function and can interpret and describe the effects of changes in the parameters of quadratic functions.</p> <p><i>The student is expected to:</i></p> <p>(A) determine the domain and range for quadratic functions in given situations;</p> <p>(B) investigate, describe, and predict the effects of changes in a on the graph of $y = ax^2 + c$;</p> <p>(C) investigate, describe, and predict the effects of changes in c on the graph of $y = ax^2 + c$; and</p> <p>(D) analyze graphs of quadratic functions and draw conclusions.</p> <p>(10) Quadratic and other nonlinear functions. The student understands there is more than one way to solve a quadratic equation and solves them using appropriate methods.</p> <p><i>The student is expected to:</i></p> <p>(A) solve quadratic equations using concrete models, tables, graphs, and algebraic methods; and</p> <p>(B) make connections among the solutions (roots) of quadratic equations, the zeros of their related</p>	<p>Lessons 106, 115</p> <p>Lessons 42, 54, 79</p> <p>Lessons 79, 83, 89, 94, 99</p> <p>Lessons 83, 89, 94, 99</p> <p>Lesson 82</p> <p>Lesson 110</p> <p>Lesson 110</p> <p>Lessons 88, 110</p> <p>Lessons 88, 118, 119</p> <p>Lessons 88, 118, 119</p>	
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<p>functions, and the horizontal intercepts (x-intercepts) of the graph of the function.</p> <p>(11) Quadratic and other nonlinear functions. The student understands there are situations modeled by functions that are neither linear nor quadratic and models the situations.</p> <p><i>The student is expected to:</i></p> <p>(A) use patterns to generate the laws of exponents and apply them in problem-solving situations;</p> <p>(B) analyze data and represent situations involving inverse variation using concrete models, tables, graphs, or algebraic methods; and</p> <p>(C) analyze data and represent situations involving exponential growth and decay using concrete models, tables, graphs, or algebraic methods.</p>	<p>Lessons 19, 53, 74</p> <p>Lessons 113, 117</p> <p>Lesson 114</p> <p>Student Activities Cooperative Learning Graphic Organizers Small Groups Drawing Manipulatives</p> <p>Teaching Strategies Direct Instruction Open-ended Questions Discussion Demonstration Brainstorming Problem Solving Read Aloud Facilitating Cooperative Learning</p> <p>Evaluation Procedures Observation Class Participation Quizzes/Tests</p>	
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	Other Resources and Bibliography None	
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