

Algebra 1

(2008-2009 ACADEMIC YEAR)

Scope and Sequence

Organizing Topic	Essential Knowledge and Skills <i>The student will be able to:</i>	Strategies	Assessment
Integers	Find the additive inverse of a number.	Lecture Demonstration Manipulatives Question/Answer PowerPoint® slides Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
	Find the absolute value of a number.		
	Solve absolute value problems.		
	Add positive and negative numbers.		
	Rewrite subtraction as addition of the opposite.		
	Add, subtract, multiply, and divide positive and negative numbers.		
	Identify and apply the commutative, associative, identity, inverse, and distributive properties of real numbers.		
	Define exponential form.		
	Simplify exponential problems using the 3 laws of exponents.		
	Distinguish between prime and composite numbers.		
	Factor a number into its prime factors, and write it in exponential form.		
Real Numbers	Categorize real, rational, irrational, whole, and natural numbers and integers.	Lecture Demonstration Question/Answer PowerPoint® slides Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
	Add, subtract, multiply, and divide rational numbers.		
	Simplify numeric expressions using order of operations.		
	Find the square root and cube root of numbers with perfect roots.		
	Identify sets, unions, and intersections using set notation.		
The Language of Algebra	Translate phrases to algebraic expressions.	Lecture Demonstration Question/Answer PowerPoint® slides Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
	Convert between positive and negative exponents.		
	Evaluate algebraic expressions.		
	Evaluate algebraic formulas.		
	Combine like terms.		
	Simplify expressions by removing parentheses.		

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Scope and Sequence (continued)

Organizing Topic	Essential Knowledge and Skills <i>The student will be able to:</i>	Strategies	Assessment
Solving Equations	Solve one-step equations.	Lecture Demonstration Question/Answer PowerPoint® slides Calculator activities Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
	Solve word problems using simple equations.		
	Solve two-step equations.		
	Solve equations by combining like terms and removing parentheses.		
	Solve equations with variables on both sides of the equal sign.		
	Solve equations involving absolute values.		
	Solve equations by removing fractions and decimals.		
	Solve mixture word problems.		
Solving Inequalities	Solve and graph simple inequalities.	Lecture Demonstration Question/Answer PowerPoint® slides Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
	Solve and graph inequalities using two or more steps.		
	Solve and graph conjunctions.		
	Solve and graph disjunctions.		
	Solve and graph absolute value inequalities.		
	Solve word problems using inequalities.		
Relations, Functions, and Graphs	Define basic terms associated with the Cartesian plane (ordered pair, x-axis, y-axis, origin, x-coordinate, y-coordinate, and quadrant).	Lecture Demonstration Question/Answer PowerPoint® slides Calculator activities Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
	Graph an ordered pair.		
	Distinguish between relations and functions.		
	Define and identify domain and range.		
	Distinguish functions using the vertical line test.		
	Label functions using function notation.		
	Graph linear equations.		
	Identify y-intercept.		
	Define and find the slope of a line.		
	Graph a line using slope-intercept form.		
	Find the equation of a line given the slope and a point on the line.		
	Find the equation of a line given two points on a line.		
	Solve problems involving direct variation.		
	Graph linear inequalities.		

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Scope and Sequence (continued)

Organizing Topic	Essential Knowledge and Skills <i>The student will be able to:</i>	Strategies	Assessment
Probability and Statistics	Define and distinguish between probability and statistics. Solve counting and probability problems using the multiplication principle of counting. Solve counting and probability problems using the addition principle of counting. Find the mean, median, and mode of a set of numbers. Display and interpret data on a stem-and-leaf plot. Calculate the range and quartiles of a set of data. Display and interpret data on a box-and-whisker plot. Graph and interpret pairs of numbers on a scatter plot. Use a graphing calculator to find the line of best fit given a set of data.	Lecture Demonstration Question/Answer PowerPoint® slides Calculator activities Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
Systems of Equations and Inequalities	Solve systems of equations by graphing. Determine whether 2 equations have 1 solution, no solutions, or infinitely many solutions. Solve systems of equations by substitution. Solve systems of equations by the addition method. Solve mixture word problems using systems of equations. Solve systems of inequalities by graphing and shading intersecting areas. Solve real-life problems using linear programming.	Lecture Demonstration Question/Answer PowerPoint® slides Calculator activities Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
Polynomials	Classify and state the degree of a polynomial. Evaluate a polynomial given values for the variables. Add and subtract polynomials. Multiply polynomials by monomials. Multiply binomials using FOIL. Multiply trinomials by binomials. Multiply binomials using special product rules. Divide polynomials by monomials. Add and subtract matrices. Multiply matrices by a scalar.	Lecture Demonstration Manipulatives Question/Answer PowerPoint® slides Calculator activities Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation

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Scope and Sequence (continued)

Organizing Topic	Essential Knowledge and Skills <i>The student will be able to:</i>	Strategies	Assessment
Factoring Polynomials	Factor out common monomial factors.	Lecture Demonstration Manipulatives Question/Answer PowerPoint® slides Calculator activities Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
	Factor the difference of 2 squares.		
	Factor perfect square trinomials.		
	Factor polynomials of the form $ax^2 + bx + c$.		
	Factor polynomials completely.		
Radicals	Approximate square roots using squares of perfect roots and calculators.	Lecture Demonstration Question/Answer PowerPoint® slides Calculator activities Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
	Convert from exponential to radical form and vice versa.		
	Simplify roots by factoring into prime factors.		
	Multiply radicals.		
	Divide radicals and rationalize the denominator.		
	Add and subtract radicals.		
	Find the length of the side of a right triangle using the Pythagorean theorem.		
	Use the distance formula to find the distance between two coordinates on a graph.		
Quadratic Equations	Define a quadratic equation.	Lecture Demonstration Manipulatives Question/Answer PowerPoint® slides Calculator activities Homework	Handouts and worksheets Questioning strategies Chapter test Facilitator observation
	Use the zero product property to find the roots/zeros/solutions of a quadratic equation.		
	Identify the basic graph of a quadratic given its roots.		
	Solve quadratic equations by factoring.		
	Solve quadratic equations by taking the square root of both sides.		
	Solve quadratic equations by completing the square.		
	Develop and use the quadratic formula to solve quadratic equations.		
	Use the discriminant to determine the number and nature of the solutions of a quadratic equation.		