

Introduction to Algebra

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DATE COMPLETED

Equations

Solve linear equations by using addition, subtraction, multiplication and division.	M
Solve problems working backwards.	D
Solve equations involving more than one operation.	M
Solve equations with the variable on both sides.	M
Solve equations containing grouping symbols, fractions, or decimals, more that one variable.	D

Applications of Rational Numbers

Solve proportions.	M
Solve percent problems and mixture problems.	D
Solve problems involving simple interest, percent of increase or decrease, discount or sales tax.	M
Solve problems by making a table or chart.	M
Solve problems involving uniform motion by using the formula $d=rt$.	D
Solve problems involving direct and inverse variations.	D

Inequalities

Solve inequalities by using addition, subtractions, multiplication, and division.	M
Solve inequalities involving more than one operation.	M
Solve problems by making a diagram.	D
Solve compound inequalities and graph their solution sets.	D
Solve problems that involve compound inequalities.	D
Solve open sentences involving absolute value and graph the solutions.	D
Create equations and inequalities in one variable and use them to solve problems.*	D
Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.*	D
Explain each step in solving a simple equation. Construct a viable argument to justify a solution method.*	D

Polynomials

Solve problems by looking for a pattern.	D
Multiply monomials.	M
Simplify expression involving powers of monomials.	I
Simplify expressions containing negative exponents.	D
Express numbers in scientific and decimal notation.	D
Find products and quotients of numbers expressed in scientific notation.	I
Find the degree of a polynomial.	M
Interpret parts of an expression, such as terms, factors, and coefficients.*	M

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Arrange the terms of polynomials so that the powers of a certain variable are in ascending or descending order.	D
Add and subtract polynomials.	M
Simplify expressions involving polynomials.	M
Identify and use the FOIL method of multiply two binomials.	M
Multiply any two polynomials by using the distributive property.	M
Know and apply the patterns for $(a+b)^2$, $(a-b)^2$, and $(a+b)(a-b)$.	M

Factoring

Find the prime factorization of an integer.	M
Find the greatest common factor (GCF) for a set of monomials.	M
Use the GCF and the distributive property to factor polynomials.	M
Use grouping techniques for factor polynomials with four or more terms.	I
Solve problems by using guess and check.	I
Factor quadratic trinomials.	I
Identify and factor polynomials that are the differences of squares.	I
Identify and factor perfect square trinomials.	I
Factor polynomials by applying the various methods of factoring.	I
Use the zero product property to solve equations.	I

Rational Numbers and Expressions

Simplify, multiply, divide rational expressions.	M
Divide polynomials by binomials.	I
Add and subtract rational expressions with like and unlike denominators.	M
Solve problems by making an organized list of the possibilities.	I
Simplify mixed expressions and complex fractions.	M
Solve rational and radical equations in one variable.*	I
Solve problems involving work and uniform motion.	I
Solve formulas for a specified variable and those that involve rational expressions.	I

Functions and Graphs

Graph ordered pairs on a coordinate plane.	M
Identify the domain, range, and inverse of a relation.	I
Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse.	I
Show relations as sets of ordered pairs and mappings.	D
Solve linear equations for a specific variable, a given domain.	D

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Simplify rational square roots and cube roots.	M
Find the approximate values for square roots.	D
Use the Pythagorean Theorem.	D
Identify irrational numbers.	D
Rewrite expressions involving radicals and rational exponents using the properties of exponents.*	D
Simplify rational expressions involving addition and subtraction.	M
Solve radical equations.	M
Find the distance between two points in the coordinate plane.	I

Quadratics

Find the equation of the axis of symmetry and the coordinates of the vertex of the graph of the quadratic function.	I
Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	I
Graph quadratic functions.	I
Find the roots of a quadratic equation by graphing.	I
Solve problems by identifying subgoals.	I
Solve quadratic equations by completing the square, using the quadratic formula.	I
Evaluate the discriminant of a quadratic equation to determine the nature other roots of the equation.	I
Solve problems that can be represented by quadratic equations.	I
Find the sum and product of the roots of a quadratic equation.	I
Write a quadratic equation given its roots.	I

STATISTICS AND PROBABILITY

Interpret numerical data from a table.	M
Represent and interpret statistical data on a line plot, on a stem-and-leaf plot.	M
Calculate and interpret the mean, median, mode, range, quartiles, and interquartile range of a set of data.	M
Represent and interpret statistical data on a box-and-whisker plot.	M
Graph and interpret pairs of numbers on a scatter plot.	M
Find the probability and/or odds of a simple event.	M
Conduct and interpret probability experiments.	D
Solve problems by first solving a simpler but related problem.	D
Find the probability of a compound event.B14	D