

Algebra Topics in the 2010 Utah Core Mathematics Standards

Utah's 2010 Core Standards spread the topics traditionally appearing in an Algebra I course over several years, with the bulk of the topics appearing in 8th grade. This coherent trajectory through algebra supports greater depth of knowledge in algebra topics and allows for integration with geometry, statistics, and modeling through the students' secondary experience. This chart represents ONLY those topics from the 2007 Algebra I course. It is not a representation of all algebra topics in the 2010 Core which is more comprehensive than those which appear here.

2010 Utah Core Standards Placement	Topics formerly appearing in Utah's Algebra I course of study, as explicated in the 2007 Utah Core Standards for Mathematics.
5 th Grade	Evaluate and simplify numerical expressions using the order of operations.
	Write algebraic expressions or equations to generalize visual or numerical patterns.
6 th Grade	Define a rational number as a point on the number line that can be expressed as the ratio of two integers.
	Place rational numbers on a number line between two integers.
	Evaluate and simplify numerical expressions containing rational numbers.
	Compute solutions to problems, represent answers in exact form, and determine the reasonableness of answers.
	Apply the properties of operations to generate equivalent expressions and identify when two expressions are equivalent.
7 th Grade	Solve single-variable linear equations.
	Solve single-variable linear inequalities.
	Solve proportions.
8 th Grade	Define numbers that are not rational as irrational.
	Classify numbers as rational or irrational, knowing that rational numbers can be expressed as terminating or repeating decimals and irrational numbers can be expressed as non-terminating, non-repeating decimals.
	Place rational and irrational numbers on a number line between two integers.
	Classify pi and square roots of non-perfect square numbers as irrational.
	Simplify expressions using positive exponents.
	Solve quadratic equations that can be simplified to the form $x^2 = a$ where $a \geq 0$ by taking square roots.
	Identify the slope of a line.
	Interpret the slope of a linear function as a rate of change in real-world situations.
	Determine the effect of changes in slope or y-intercept in $y=mx+b$.
	Determine and explain the meaning of slopes and intercepts using real-world examples.
	Represent linear equations in slope-intercept form $y=mx+b$, and standard for $Ax+Bx=C$.
	Distinguish between linear and non-linear functions.
	Solve linear equations.
Solve systems of two linear equations graphically and algebraically.	

8 th Grade (Continued)	Determine the number of possible solutions for a system of two linear equations.
	Calculate the measures of the sides of a right triangle using the Pythagorean Theorem.
	Collect, record, organize and display a set of data with at least two variables.
	Determine whether the relationship between two variables is approximately linear or non-linear by examination of a scatter plot.
	Characterize the relationship between two linear related variables as having positive, negative, or approximately zero correlation.
	Interpret the slope and y-intercept of a line through data.
Secondary I	Solve equations for a specified variable.
	Write the equation of a line.
	Graph linear relations and inequalities.
	Graph a system of linear inequalities and identify the solution.
	Identify the slope of a line given points, a graph, or an equation.
	Estimate the equation of a line of best fit to make and test conjectures.
Secondary II	Predict y -values for given x -values when appropriate using a line fitted to bivariate numerical data.
	Solve quadratic equations using factoring.
	Simplify polynomials.
	Add, subtract, and multiply polynomials.
	Factor trinomials, difference of two squares, and perfect square trinomials.
Not explicitly in UCS	Write a quadratic equation.
	Simplify, add, subtract, multiply, and divide expressions with square roots.
	Identify horizontal and vertical lines given the equations or slopes.
	Find the greatest common monomial factor of a polynomial.