

Jemez Valley Public Schools
ALGEBRA I MATHEMATICS • CONTENT MAP

Quadrant I	Quadrant II	Quadrant III	Quadrant IV
Strand 1: Algebra, Functions, and Graphs			
Standard: Students will understand algebraic concepts and applications.			
<p>Use the special symbols of mathematics correctly and precisely.</p> <p>Translate verbal statements into algebraic expressions or equations.</p> <p>Simplify numerical expressions using the order of operations, including integer exponents.</p> <p>Classify and use equivalent representations of natural, whole, integers, rational, irrational numbers and choose which type of number is appropriate in a given context.</p> <p>Determine the relative position on the number line and the relative magnitude of integers, decimals, rationals, irrationals, and numbers in scientific notation.</p> <p>Explain that the distance between two numbers on the number line is the absolute value of their difference.</p> <p>Translate among tabular, symbolic, and graphical representations of functions and relations.</p> <p>Distinguish measurement data from categorical data and define the term variable.</p> <p>Use the basic operations (+, -, x) with linear and polynomial expressions in contextual situations. (matrices)</p> <p>Explain and use equivalent representations for algebraic expressions.</p> <p>Evaluate polynomial, rational, radical, and absolute value expressions for one or more variables.</p> <p>Solve linear equations and inequalities in one variable including</p>	<p>Use the special symbols of mathematics correctly and precisely.</p> <p>Model real-world phenomena using linear equations and linear inequalities, interpret resulting solutions, and use estimation to detect errors.</p> <p>Solve formulas for specified variables.</p> <p>Evaluate estimated rate of change in a contextual situation (% increase/decrease).</p> <p>Solve linear equations and inequalities in one variable including those involving absolute value of a linear function.</p> <p>Translate among tabular, symbolic, and graphical representations of functions and relations.</p> <p>Distinguish between the concept of a relation and a function.</p> <p>Determine whether a relation defined by a graph, a set of ordered pairs, a table of values, an equation, or a rule is a function.</p> <p>Construct a linear function that represents a graph.</p> <p>Explain and use function notation in both abstract and contextual situations and evaluate a function at a specific point in its domain.</p>	<p>Translate verbal statements into algebraic expressions or equations.</p> <p>Model real-world phenomena using linear equations and linear inequalities, interpret resulting solutions, and use estimation to detect errors.</p> <p>Read information and draw conclusions from graphs, and identify properties of a graph that provide useful information about the original problem.</p> <p>Evaluate estimated rate of change in a contextual situation.</p> <p>Graph a linear equation and demonstrate that it has a constant rate of change.</p> <p>Understand the relationship between the coefficients of a linear equation and the slope and the x- and y-intercepts of its graphs.</p> <p>Write an equation of the line that passes through two given points.</p> <p>Verify that a point lies on a line, given an equation of the line, and be able to derive linear equations given a point and a slope.</p> <p>Determine whether the graphs of two linear equations are parallel, perpendicular, coincide or none of these.</p> <p>Solve systems of linear equations in two variables algebraically and graphically.</p> <p>Solve applications involving systems of two equations in two variables.</p>	<p>Describe that properties of rational exponents and apply these properties to simplify algebraic expressions.</p> <p>Factor polynomials of various types (e.g. difference of squares, perfect square trinomials, sum and difference of cubes).</p> <p>Use the four basic operations (+, -, x, /) with linear, polynomial, and rational expressions in contextual situations.</p> <p>Solve quadratic equations in one variable by factoring.</p> <p>Classify and use equivalent representations of natural, whole, integers, rational, irrational numbers and choose which type of number is appropriate in a given context.</p> <p>Evaluate polynomial, rational, radical, and absolute value expressions for one or more variables.</p>

<p>those involving absolute value of a linear function.</p> <p>Model real-world phenomena using linear equations and linear inequalities, interpret resulting solutions, and use estimation to detect errors.</p> <p>Solve formulas for specified variables.</p>		<p>Use the special symbols of mathematics correctly and precisely.</p> <p>Use the four basic operations (+, -, x, /) in contextual situations with numbers in scientific notation, and express the results with the appropriate number of significant figures.</p> <p>Describe that properties of rational exponents and apply these properties to simplify algebraic expressions.</p>	
Quadrant I	Quadrant II	Quadrant III	Quadrant IV
Strand 2: Geometry and Trigonometry Standard: Students will understand geometric concepts and applications			
	<p>Solve problems using the Pythagorean Theorem.</p> <p>Use basic geometric ideas (e.g. the Pythagorean Theorem, area, perimeter) in the context of the Cartesian coordinate plane (e.g. calculate the perimeter of a rectangle with integer coordinates and with sides parallel to the coordinate axes, and of a rectangle with sides not parallel).</p> <p>Identify the origin, coordinate axes, and four quadrants on the Cartesian coordinate plane, and draw and label them correctly</p>		
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Strand 3: Data Analysis and Probability Standard: Students will understand how to formulate questions, analyze data, and determine probabilities.			
<p>Compare distributions of univariate data using back-to-back stem and leaf plots and parallel box and whisker plots.</p> <p>Explain the concept of a random variable.</p> <p>Explain how the relative frequency of a specified outcome of an event can be used to estimate the probability of the outcome.</p> <p>Use the results of simulations to compute the expected value and probabilities of random variables in simple cases.</p> <p>Compute the probability of an even using the complement rule, addition rule for disjoint and joint events, multiplication rule for independent events, and rules for conditional probability.</p>		<p>Describe the shape of a scatterplot.</p> <p>Use linear patterns in data to make predictions.</p>	

