

Big Understandings of the Content Area

- * Investigate patterns and represent them symbolically.
- * Solve equations applying the field properties of real numbers.
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Content Standards				
A. NUMBERS AND NUMBER SENSE: Students will understand and demonstrate a sense of what numbers mean and how they are used.	B. COMPUTATION: Students will understand and demonstrate computation skills.	C. DATA ANALYSIS AND STATISTICS: Students will understand and apply concepts of data analysis.	D. PROBABILITY: Students will understand and apply concepts of probability.	E. GEOMETRY: Students will understand and apply concepts from geometry.
Performance Indicators Student will be able to: <ul style="list-style-type: none"> ♦ Describe the structure of the real number system and identify its appropriate applications and limitations. ♦ Explain what complex numbers (real and imaginary) mean and describe some of their many uses. 	Performance Indicators Student will be able to: <ul style="list-style-type: none"> ♦ Use various techniques to approximate solutions, determine the reasonableness of answers, and justify the results. ♦ Explain operations with number systems other than base ten. 	Performance Indicators Student will be able to: <ul style="list-style-type: none"> ♦ Determine and evaluate the effect of variables on the results of data collection. ♦ Predict and draw conclusions from charts, tables, and graphs that summarize data from practical situations. ♦ Demonstrate an understanding of concepts of standard deviation and correlation and how they relate to data analysis. ♦ Demonstrate an understanding of the idea of random sampling and recognition of its role in statistical claims and designs for data collection. ♦ Revise studies to improve their validity (e.g., in terms of better sampling, better controls, or better data analysis techniques) ♦ 	Performance Indicators Student will be able to: <ul style="list-style-type: none"> ♦ Find the probability of compound events and make predictions by applying probability theory. ♦ Create and interpret probability distributions. 	Performance Indicators Student will be able to: <ul style="list-style-type: none"> ♦ Draw coordinate representations of geometric figures and their transformation. ♦ Use inductive and deductive reasoning to explore and determine the properties of and relationships among geometric figures. ♦ Apply trigonometry to problem situations involving triangles and periodic phenomena.
Knowledge/Skills <ul style="list-style-type: none"> ♦ Define rational numbers. ♦ Find reciprocals. ♦ Understand the concept of 	Knowledge/Skills <ul style="list-style-type: none"> ♦ Find and extend the pattern of a sequence using the difference method. 	Knowledge/Skills <ul style="list-style-type: none"> ♦ Interpret data in a scatter plot. ♦ Identify a correlation based 	Knowledge/Skills <ul style="list-style-type: none"> ♦ Find the experimental probability that and event will occur. 	Knowledge/Skills <ul style="list-style-type: none"> ♦ Identify basic transformations of parent functions. ♦ Identify how a change of slope affects a graph and the equation of a line.

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<p>exponents and powers including negative & zero.</p> <ul style="list-style-type: none"> ♦ Evaluate expressions. ♦ Use the order of operations to evaluate expressions ♦ Apply concepts of absolute value & opposites to integers. ♦ Add, subtract, multiply, & divide integers. ♦ Evaluate algebraic expressions. ♦ Use the properties of exponents to simplify expressions. ♦ Understand and use scientific notation to represent very large or small numbers. ♦ Explain operations in number systems other than base 10. 	<ul style="list-style-type: none"> ♦ on the orientation of points in a scatter plot. ♦ Find the mean, median, mode, and range for a set of data. ♦ Find the line of best fit for a set of data. 	<ul style="list-style-type: none"> ♦ Use probability simulations. ♦ Use counting techniques to find theoretical probabilities. ♦ Find the probability of independent events. ♦ Interpret probability distributions. 		
<p>Assessment</p> <ul style="list-style-type: none"> ♦ Homework, quizzes, tests, and projects. 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same 	
<p>LAS</p> <ul style="list-style-type: none"> ♦ 		<p>Which Base Bundle</p>	<p>The Sandwich Shop</p>	<p>Roll On</p>
<p>Resources</p> <ul style="list-style-type: none"> ♦ Text: HRW-<u>Algebra I</u> <p>CORD</p>	<ul style="list-style-type: none"> ♦ Text 	<ul style="list-style-type: none"> ♦ Text ♦ Scott, Foresman-<u>Mathematical Ideas</u> 	<ul style="list-style-type: none"> ♦ Text ♦ LAS 	<ul style="list-style-type: none"> ♦ Text ♦ CORD
<p>Instructional Strategies</p> <ul style="list-style-type: none"> ♦ Lecture ♦ Experiment - Discovery ♦ Cooperative Learning ♦ Projects 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same

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- * Investigate patterns and represent them symbolically.
- * Solve equations applying the field properties of real numbers.

Content Standards				
G. PATTERNS, RELATIONS, FUNCTIONS: Students will understand that mathematics is the science of patterns, relationships, and functions.	H. ALGEBRA CONCEPTS: Students will understand and apply algebraic concepts.	I. DISCRETE MATHEMATICS: Students will understand and apply concepts in discrete mathematics.	J. MATHEMATICAL REASONING: Students will understand and apply concepts of mathematical reasoning.	K. MATHEMATICAL COMMUNICATION: Students will reflect upon and clarify their understanding of mathematical ideas and relationships.
Performance Indicators Student will be able to: <ul style="list-style-type: none"> ♦ Create a graph to represent a real-life situation and draw inferences from it. ♦ Translate and solve a real-life problem using symbolic language. ♦ Model phenomena using a variety of functions (linear, quadratic, exponential, trigonometric, etc.). ♦ Identify a variety of situations explained by the same type of function. 	Performance Indicators Student will be able to: <ul style="list-style-type: none"> ♦ Use tables, graphs, and spreadsheets to interpret expressions, equations, and inequalities. ♦ Investigate concepts of variation by using equations, graphs, and data collection. ♦ Formulate and solve equations and inequalities ♦ Analyze and explain situations using symbolic representations. 	Performance Indicators Student will be able to: <ul style="list-style-type: none"> ♦ Use linear programming to find optimal solutions to a system. ♦ Use networks to find solutions to problems ♦ Apply strategies from game theory to problem-solving situations. ♦ Use matrices as tools to interpret and solve problems. 	Performance Indicators Student will be able to: <ul style="list-style-type: none"> ♦ Analyze situations where more than one logical conclusion can be drawn from data presented. 	Performance Indicators Student will be able to: <ul style="list-style-type: none"> ♦ Restate, create, and use definitions in mathematics to express understanding, classify figures, and determine the truth of a proposition or argument. ♦ Read mathematical presentations of topics within the Learning Results with understanding.
Knowledge/Skills <ul style="list-style-type: none"> ♦ Find a pattern in a sequence. ♦ Generate a sequence. ♦ Identify and graph ordered pairs. Define linear function, domain and range. ♦ Find the line of best fit in a scatter plot. ♦ Compare linear & exponential functions. ♦ Graph & identify characteristics of quadratic functions. ♦ Graph & define reciprocal functions. ♦ Graph and define absolute 	Knowledge/Skills <ul style="list-style-type: none"> ♦ Understand concepts of variables, expressions & terms. ♦ Simplify expressions by combining the terms. ♦ Solve linear equations. ♦ Solve linear inequalities. ♦ Solve absolute value equations. ♦ Solve absolute value inequalities. ♦ Solve problems of direct variation. ♦ Graph systems of equations. ♦ Find an approximate 	Knowledge/Skills <ul style="list-style-type: none"> ♦ Interpret data from given information, and write in a table or matrix form. ♦ Determine the dimensions and addresses of a matrix. ♦ Determine if two matrices are equal. ♦ Add and subtract matrices. 	Knowledge/Skills <ul style="list-style-type: none"> ♦ Recognize deceptive uses of statistics. 	Knowledge/Skills <ul style="list-style-type: none"> ♦ Cross cutting – used throughout curriculum.

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<ul style="list-style-type: none"> and greatest integer functions. ♦ Graph data to identify functions. ♦ Define function, relation. Use function notation and vertical line test. ♦ Define & calculate slope. ♦ Define and use the slope/intercept form of a line. ♦ Graph data to identify functions. ♦ Examine graphs of quadratic functions to determine vertex, the axis of symmetry, & zeros. 	<ul style="list-style-type: none"> solution to a system by inspecting the graph. ♦ Find an exact solution to a system by substitution or by elimination. ♦ Graph the solution to an inequality. ♦ Graph the solution to a system of linear inequalities. ♦ Add & subtract polynomials. ♦ Multiply polynomials. ♦ Factor polynomials. ♦ Solve quadratic equations for the form $x^2 = k$. ♦ Solve quadratics by completing the square. ♦ Solve quadratics by factoring. ♦ Use the quadratic formula to solve quadratics equations. 			
<p>Assessment</p> <ul style="list-style-type: none"> ♦ Homework, quizzes, tests, and projects. 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same
<p>LAS</p> <ul style="list-style-type: none"> ♦ Exploring Patterns 	<ul style="list-style-type: none"> ♦ Exploring Patterns 			
<p>Resources</p> <ul style="list-style-type: none"> ♦ Text: HRW-<u>Algebra I</u> ♦ CORD 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Text 	<ul style="list-style-type: none"> ♦ Text 	<ul style="list-style-type: none"> ♦ Text
<p>Instructional Strategies</p> <ul style="list-style-type: none"> ♦ Lecture ♦ Experiment - Discovery ♦ Cooperative Learning ♦ Projects 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same 	<ul style="list-style-type: none"> ♦ Same