

MATHEMATICS
HINSDALE SCHOOL DISTRICT

**Course: Algebra I, Text: Algebra I, HRW, 2007. All sections in activities refer to the text
Standard: M:Functions and Algebra (F&A):10-1-Assessed**

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Identifies, extends, and generalizes a variety of patterns (linear and nonlinear) represented by models, tables, sequences, or graphs in problem solving situations.</p>	<p>models</p> <p>tables</p> <p>sequences</p> <p>graphs</p>	<p>Note: Nearly every section in the text has a keyword that accesses an internet video via go.hrw.com. These videos are used periodically throughout the curriculum.</p> <p>Section 0-2, 0-3, 0-7, 0-9, 0-11, 0-13</p> <p>Section 4-4 Technology lab, 5-4</p> <p>Sections 0-2, 4-6, 0-9, 1-4,</p> <p>Sections 0-3, 1-8, 4-4, 4-5, 6-1, 9-1</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: M:F&A-10-2-Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Demonstrates conceptual understanding of linear and nonlinear functions and relations (including characteristics of classes of functions) through an analysis of constant, variable, or average rates of change, intercepts, domain, range, maximum and minimum values, increasing and decreasing intervals and rates of change (e.g., the height is increasing at a decreasing rate); describes how change in the value of one variable relates to change in the value of a second variable; or works between and among different representations of functions and relations (e.g., graphs, tables, equations, function notation).</p>	<ul style="list-style-type: none"> - An analysis of constant, variable, or average rates of change - Intercepts - Domain and range -Maximum and minimum values -Increasing and decreasing intervals -Rates of change (e.g., the height is increasing at a decreasing rate) 	<p>Section 5-3, 5-3 Lab</p> <p>Section 5-2, 5-6, 6-1</p> <p>Section 5-1</p> <p>Section 9-1</p> <p>Teacher made lesson</p> <p>Section 5-3</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

	<p>-Describe how change in the value of one variable relates to change in the value of a second variable; or works between and among different representations of functions and relations (e.g., graphs, tables, equations, function notation).</p>	<p>Section 5-3</p>	
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MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: MF&A:-10-3-Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Demonstrates conceptual understanding of algebraic expressions by solving problems involving algebraic expressions, by simplifying expressions (e.g., simplifying polynomial or rational expressions, or expressions involving integer exponents, square roots, or absolute values), by evaluating expressions, or by translating problem situations into algebraic expressions.</p>	<ul style="list-style-type: none"> - Simplifying and evaluating polynomial expressions -Simplifying and evaluating rational expressions -Simplifying and evaluating expressions involving integer exponents -Simplifying and evaluating expressions involving square roots -Translates problem situations into algebraic expressions using polynomial 	<ul style="list-style-type: none"> Sections 7-5, 7-6, 7-7, 7-8 Sections 12-5, 12-6, 12-7 Sections 7-1, 7-2, 7-3, 7-4 Sections 1-5, 11-6 Sections 7-5, 8-1, 8-2, 8-3 	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

	expressions -Translates problem situations into algebraic expressions using rational expressions -Translates problem situations into algebraic expressions using integer exponents -Translates problem situations into algebraic expressions using square roots	Sections 12-4, 12-5, 12-7 Sections 7-2, 7-3 Sections 11-6, 11-7, 11-9	
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MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: MF&A-10-4-Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Demonstrates conceptual understanding of equality by solving problems involving algebraic reasoning about equality; by translating problem situations into equations; by solving linear equations (symbolically and graphically) and expressing the solution set symbolically or graphically, or provides the meaning of the graphical interpretations of solution(s) in problem-solving situations; or by solving problems involving systems of linear equations in a context (using equations or graphs) or using models or representations.</p> <p>-</p>	<p>-Translating problem situations into equations; by solving linear equations symbolically</p> <p>-Translating problem situations into equations by solving linear equations graphically</p> <p>-Express the solution set of a linear equation symbolically</p> <p>-Express the solution set of a linear equation graphically</p>	<p>Sections 6-2, 6-3, 6-4, 6-5, 6-6</p> <p>Sections 6-1, 6-6</p> <p>Section 6-2 Algebra Lab</p> <p>Section 6-1</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

	<p>-Provide the meaning of the graphical interpretations of solution(s) in problem solving situations</p> <p>-Solving problems involving systems of linear equations in a context of using equations, graphs, or using models and representations</p>	<p>Sections 4-5 Technology Lab, 6-1</p> <p>Sections 6-1 Technology Lab, 6-1, 6-2 Algebra Lab, 6-2, 6-3, 6-4,</p>	
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MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: Data, Statistics, and Probability (DSP)-10-1-Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Interprets a given representation(s) (e.g., box-and-whisker plots, scatter plots, bar graphs, line graphs, circle graphs, histograms, frequency charts) to make observations, to answer questions, to analyze the data to formulate or justify conclusions, critique conclusions, make predictions, or to solve problems within mathematics or across disciplines or contexts (e.g., media, workplace, social and environmental situations).</p>	<p>box-and-whisker plots</p> <p>scatter plot</p> <p>bar graph</p> <p>line graphs</p> <p>circle graph</p> <p>histogram</p> <p>frequency charts</p>	<p>Section 10-3</p> <p>Section 4-5</p> <p>Section 10-1</p> <p>Section 10-1</p> <p>Section 10-1</p> <p>Section 10-2</p> <p>Section 10-2</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I
Standard: DSP-10-2-Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Analyzes patterns, trends, or distributions in data in a variety of contexts by determining, using, or analyzing measures of central tendency (mean, median, or mode), dispersion (range or variation), outliers, quartile values, estimated line of best fit, regression line, or correlation (strong positive, strong negative, or no correlation) to solve problems; and solve problems involving conceptual understanding of the sample from which the statistics were developed.</p>	<p>Mean, median, mode</p> <p>Range</p> <p>Outliers</p> <p>Quartile values</p> <p>Estimated line of best fit</p> <p>Regression line or correlation and understanding positive, negative, or no correlation</p> <p>Solve problems involving conceptual understanding of the sample from which the statistics were developed.</p>	<p>Section 10-3</p> <p>Section 10-3</p> <p>Section 10-3</p> <p>Section 10-3</p> <p>Section 4-5</p> <p>Section 4-5</p> <p>Sections 4-5, 4-5 Technology Lab</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: DSP-10-3-Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Identifies or describes representations or elements of representations that best display a given set of data or situation, consistent with the representations required in M(DSP)–10–1.</p>	<p>box-and-whisker plots</p> <p>scatter plot</p> <p>bar graph</p> <p>line graphs</p> <p>circle graph</p> <p>histogram</p> <p>frequency charts</p>	<p>Section 10-3</p> <p>Section 4-5</p> <p>Section 10-1</p> <p>Section 10-1</p> <p>Section 10-1</p> <p>Section 10-2</p> <p>Section 10-2</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I
Standard: DSP-10-4-Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Uses counting techniques to solve problems in context involving combinations or permutations using a variety of strategies (e.g., organized lists, tables, tree diagrams, models, Fundamental Counting Principle, or^{sc} others).</p>	<p>combinations</p> <p>permutations</p> <p>Varied strategies including:</p> <p>organized lists</p> <p>tables</p> <p>tree diagrams,</p> <p>models</p> <p>Fundamental Counting Principle</p>	<p>Section 10-8</p> <p>Section 10-8</p> <p>Section 10-1,</p> <p>Section 10-2</p> <p>Section 0-2</p> <p>Section 10-1, 10-2, 10-3, 10-4</p> <p>Section 10-8</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: Numbers and Operations (N&O)-10-2-Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Demonstrates understanding of the relative magnitude of real numbers by solving problems involving ordering or comparing rational numbers, common irrational numbers (e.g., $\sqrt{2}$, π), rational bases with integer exponents, square roots, absolute values, integers, or numbers represented in scientific notation using number lines or equality and inequality symbols.</p>	<p>rational number</p> <p>common irrational numbers (e.g., $\sqrt{2}$, π)</p> <p>rational bases with integer exponents</p> <p>square roots</p> <p>absolute values</p> <p>integers</p> <p>numbers represented in scientific notation</p> <p>using number lines</p> <p>using equality and inequality symbols.</p>	<p>Section 1-5</p> <p>Section 1-5</p> <p>Section 1-4</p> <p>Section 1-5</p> <p>Section 1-2</p> <p>Section 1-5</p> <p>Section 7-2</p> <p>Section 1-2,</p> <p>Section 3-1, 3-2, 3-3, 3-4, 3-5, 3-6</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I
Standard: N&O-10-4-Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Accurately solves problems involving rational numbers within mathematics, across content strands, disciplines or contexts (with emphasis on, but not limited to, proportions, percents, ratios, and rates).</p>	<p>Proportions</p> <p>Percents</p> <p>Ratios</p> <p>Rates</p>	<p>Section 2-6</p> <p>Section 2-8</p> <p>Section 2-6</p> <p>Section 2-6</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: F&A-HS-1-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
Identifies arithmetic and geometric sequences and finds the nth term; then uses the generalization to find a specific term.	Arithmetic sequences Geometric sequences Finding nth term Finding specific term	Sections 4-6 and 11-1 Section 11-1 Section 11-1 Section 11-1	Homework completion, assessed homework, classwork, quizzes/tests, participation

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I
Standard:F&A-HS-2-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Demonstrates conceptual understanding of linear and nonlinear functions and relations.</p> <ul style="list-style-type: none"> Analyzes characteristics of classes of functions (polynomial, rational, and exponential) to include domain, range, intercepts, increasing and decreasing intervals and rates of change. Understands one-to-one (injective) functions and that a function that is one-to-one has a converse that is also a function; and finds inverses algebraically and graphically. 	<p>Characteristics of polynomials</p> <p>domain, range, intercepts, increasing and decreasing intervals and rates of change.</p> <p>Rationals</p> <p>Exponential functions domain, range, intercepts, increasing and decreasing intervals and rates of change.</p> <p>Definition of one-to-one function</p> <p>Inverses</p> <p>Graphically Algebraically</p>	<p>Section 7-5</p> <p>Section 4-2, 1-8, 5-3</p> <p>Section 11-2</p> <p>Section 12-2</p> <p>Teacher made lesson to go along with Section 4-2 Algebra Lab</p> <p>Teacher made lesson to go along with Sections 1-2, 1-3, Skills Bank pg S78</p> <p>Teacher Made Lesson</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

<ul style="list-style-type: none"> • Graphs polynomial, rational and exponential functions, including vertical and horizontal shifts, stretches, and compressions as well as reflections across vertical and horizontal axes. • Applies knowledge of functions to interpret and understand situations, design mathematical models, and solve problems in mathematics as well as in the natural and social sciences. 	<p>Polynomials</p> <p>Graphs of Rationals Exponentials Transformations Shifts and reflections</p> <p>Interpret and understand situations, model situations, and solve problems in mathematics and natural and social sciences</p>	<p>Teacher Made Lesson</p> <p>Sections 11-2, 11-5, 12-3 Technology Lab</p> <p>Section 4-3</p>	
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MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: F&A-HS-3-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Demonstrates conceptual understanding of algebraic expressions.</p> <ul style="list-style-type: none"> • Manipulates, evaluates, and simplifies algebraic and numerical expressions. • Adds, subtracts, multiplies and divides polynomials and rational expressions. • Factors quadratic and higher degree polynomials. • Understands properties of logarithms and converts between logarithmic and exponential forms. • Manipulates, evaluates, and simplifies 	<ul style="list-style-type: none"> • Manipulates, evaluates, and simplifies algebraic and numerical expressions. • Adds, subtracts, multiplies and divides polynomials and rational expressions. • Factors quadratic and higher degree polynomials. • Understands properties of logarithms and converts between logarithmic and exponential forms. • Manipulates, evaluates, and 	<p>Sections 7-1, 7-2, 7-3, 7-4, 7-5</p> <p>Sections 7-6, 7-7, 7-8, 12-5, 12-6, 12-7</p> <p>Section 8-1, 8-2, 8-3, 8-4</p> <p>Teacher made lesson</p> <p>Chapter 11 Extension</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I
Standard:F&A-HS-4-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Demonstrates conceptual understanding of equality.</p> <ul style="list-style-type: none"> • Factors, completes the square, uses the quadratic formula, and graphs quadratic functions to solve quadratic equations. • Solves equations involving polynomial, rational, and radical expressions. Graphs and interprets the solutions. • Understands extraneous solutions. • Finds approximate solutions to equations by graphing each side as a function using technology. Understands that any equation in x can be interpreted as the equation $f(x) = g(x)$ and interpret the solutions of the equation as the x-value(s) of the 	<p>Factors, completes the square, uses the quadratic formula, and graphs quadratic functions to solve quadratic equations.</p> <p>Solves equations involving polynomial, rational, and radical expressions. Graphs and interprets the solutions.</p> <p>Understands extraneous solutions.</p> <p>Finds approximate solutions to equations by graphing each side as a function using technology. Understands that any equation in x can be interpreted as the equation $f(x) = g(x)$ and interpret the solutions of the</p>	<p>Sections 8-1 through 8-6, 9-3</p> <p>Sections 8-1, 8-2, 8-3, 8-4, 8-5, 8-6</p> <p>Section 11-9</p> <p>Sections 4-3, 4-4 Technology lab</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

<p>intersection point(s) of the graphs of $y = f(x)$ and $y = g(x)$.</p> <ul style="list-style-type: none">• Solves 2×2 and 3×3 systems of linear equations and graphically interprets the solutions.• Solves systems of linear and quadratic inequalities.• Solves systems of equations involving nonlinear expressions and graphically interprets the solutions.• Translates problem situations into inequalities; and solves linear and non-linear inequalities (symbolically and graphically).			
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MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: DSP-HS-1-2-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>DSP-HS-1: Interprets a given representation(s) (e.g., regression function including linear, quadratic, and exponential) to analyze the data to make inferences and to formulate, justify, and critique conclusions.</p> <p>DSP-HS-2: Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using measures of dispersion (standard deviation, variance, and percentiles).</p>	<p>Regression</p> <p>Linear</p> <p>Quadratic</p> <p>Exponential</p> <p>Standard deviation</p> <p>Variance</p> <p>percentiles</p>	<p>Teacher made lesson</p> <p>Section 11-4</p> <p>Section 11-4</p> <p>Section 11-4</p> <p>Skills Bank pg S74</p> <p>Teacher made lesson</p> <p>Teacher made lesson</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I
Standard: DSP-HS-4-5-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>DSP-HS-4: Uses counting techniques to solve problems in context involving combination or permutations using nCr, nPr, or $n!$; and finds unions, intersections, and complements of sets. DSP-HS-5: For a probability event in which the sample space may or may not contain equally likely outcomes, predicts the theoretical probability of an event and tests the prediction. compares and contrasts theoretical and experimental probabilities; finds the odds of an event and understands the relationship between probability and odds.</p>	<p>Combinations</p> <p>Permutations</p> <p>Unions</p> <p>Intersections</p> <p>Complements of sets</p> <p>Probability</p> <p>odds</p>	<p>Section 10-8</p> <p>Section 10-8</p> <p>Section 3-6</p> <p>Section 3-6</p> <p>Skills Set page S78</p> <p>Section 10-5</p> <p>Section 10-6</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I
Standard: DSP-HS-6-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, research, experimentation) and sampling techniques (e.g., random sample, stratified random sample) to collect the data necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the questions or hypotheses being tested while considering the limitations of the data that could effect interpretations; and when appropriate makes</p>	<p>Sampling techniques</p> <p>Interpretations</p>	<p>Sampling and Bias page 708</p> <p>Section 4-5 Technology Lab</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

<p>predications, asks new questions, or makes connections to real-world situations.</p>			
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MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I
Standard: N&O-HS-1-2-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>N&O-HS-1 Demonstrates conceptual understanding of rational numbers by knowing why a real number is rational if and only if the number's decimal expansion eventually repeats or terminates.</p> <p>N&O-HS-2 Demonstrates understanding of the relative magnitude of real numbers by solving problems that involve ordering or comparing any subset of the real numbers.</p>	<p>Rational numbers, terminators versus repeaters</p> <p>Real Numbers</p>	<p>Section 1-5</p> <p>Section 1-5, 1-6</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra 1

Standard: **N&O-HS-4-Not Assessed**

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Accurately solves problems.</p> <ul style="list-style-type: none"> • Interprets and computes with rational exponents and their relation to radicals, by hand in simple cases (e.g., $4^{3/2}$), and using a calculator when appropriate. • Interprets and computes in scientific notation with and without a calculator. • Solves compound interest problems using $A = P\left(1 + \frac{r}{n}\right)^{nt}$, where n is finite. 	<p>Rational exponents</p> <p>Computes in scientific notation</p> <p>Solves compound interest problems</p>	<p>Chapter 11 Extension</p> <p>Section 7-2</p> <p>Section 11-3</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra 1

Standard: N&O-HS-6-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Uses a variety of mental computation strategies to solve problems (e.g., using compatible numbers, applying properties of operations, using mental imagery, using patterns) and to determine the reasonableness of answers.</p>	<p>Reasonableness of answers</p>	<p>Throughout Algebra I curriculum</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: N&O-HS-7-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Makes estimates in a given situation (e.g., tips, discounts, tax, the value of a non-perfect square root or cube root) by identifying when estimation is appropriate, selecting the appropriate method of estimation; determining the level of accuracy needed given the situation; analyzing the effect of the estimation method on the accuracy of results; evaluating the reasonableness of solutions appropriate to GSEs across content strands.</p>	<p>Estimation</p>	<p>Sections 2-8, 2-9, 2-10</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course: Algebra I

Standard: N&O-HS-8-Not Assessed

Knowledge & Skills	Content	Activities Resources & Materials	Assessments
<p>Applies properties of numbers and field properties (including determining whether a given subset of numbers is closed under a given arithmetic operation) to solve problems or to simplify computations; and compares and contrasts the properties of numbers and number systems; adds and multiplies numerical matrices with attention to the arithmetic properties of these operations.</p>	<p>Properties of numbers</p>	<p>Throughout Algebra I curriculum</p>	<p>Homework completion, assessed homework, classwork, quizzes/tests, participation</p>

MATHEMATICS
HINSDALE SCHOOL DISTRICT

Course:

Standard:

Knowledge & Skills	Content	Activities Resources & Materials	Assessments