



## Correlation of the Understanding Math 2008© Programs With the California Mathematics Content Standards for Algebra 1

The programs are designed for use in a variety of teaching and learning environments ranging from a teacher-centered approach with one computer to a student-centered lab approach. The lessons may also be used in remediation, tutorials, intervention, resource, and fast-tracking.

### Organization of the Understanding Math 2008© Programs

The Understanding Math 2008© series of programs consists of the following nine programs written for fourth to tenth grade:

- |  |                           |
|--|---------------------------|
| Understanding Whole Numbers and Integers | Understanding Equations   |
| Understanding Measurement and Geometry   | Understanding Probability |
| Understanding Fractions                  | Understanding Algebra     |
| Understanding Graphing                   | Understanding Exponents   |
| Understanding Percent                    |                           |

Each program contains several sections with several topics. Every topic has the following:

- 1) an interactive concept introduction, usually with a variety of graphic approaches;
- 2) a number of particular examples;
- 3) practice questions with random questions, but specific feedback;
- 4) a topic test with random questions and tracking;
- 5) on-line worksheets selected from our website ([www.neufeldmath.com](http://www.neufeldmath.com)).

Teachers may also search for specific topics using our search engine at <http://www.corr.neufeldmath.com>.

Each of the twenty-five content standards have been correlated to the Understanding Math 2008© programs. The beginning of each standard is listed below:

1.0 (page 2)	6.0 (page 8)	11.0 (page 15)	16.0 (page 20)	21.0 (page 22)
2.0 (page 3)	7.0 (page 9)	12.0 (page 16)	17.0 (page 20)	22.0 (page 22)
3.0 (page 5)	8.0 (page 10)	13.0 (page 16)	18.0 (page 21)	23.0 (page 23)
4.0 (page 5)	9.0 (page 11)	14.0 (page 19)	19.0 (page 21)	24.0 (page 24)
5.0 (page 7)	10.0 (page 12)	15.0 (page 20)	20.0 (page 22)	25.0 (page 24)

Ideas that are **not included** in the current Understanding Numeration 2008© and Understanding Math 2008© programs are noted as *not yet correlated*.

For lesson planning purposes, there is space in the chart for notes, material lists, links, resources etc.



**California Mathematics Content Standards  
Correlated to Understanding Math 2008 ©  
Algebra 1**

**Grade Eight through Grade 12... Algebra I**

**Mathematics Content Standards**

Symbolic reasoning and calculations with symbols are central in algebra. Through the study of algebra, a student develops an understanding of the symbolic language of mathematics and the sciences. In addition, algebraic skills and concepts are developed and used in a wide variety of problem-solving situations.

**1.0 Students identify and use the arithmetic properties of subsets of integers and rational, irrational, and real numbers, including closure properties for the four basic arithmetic operations where applicable:**

1.1 Students use properties of numbers to demonstrate whether assertions are true or false.

**Understanding Equations 2008**

**Notes**

**Section 7: Solving Inequalities**

Inequalities	Inequalities vs. Equations Summary of Relationships
Inequalities on a Number Line	Example 1 Example 2 Example 3 Example 4
Solving Compound Inequalities	Example 1 Example 2

**Understanding Equations 2008**

**Notes**

**Section 8: Solving Absolute Value Equations**

Absolute Value Equations in 1 Variable	Example 1 Example 2
Absolute Value Inequalities in 1 Variable	Example 1 Example 2
Absolute Value Equations in 2 Variable	Example 1 Example 2



**2.0 Students understand and use such operations as taking the opposite, finding the reciprocal, taking a root, and raising to a fractional power. They understand and use the rules of exponents.**

<b>Understanding Whole Numbers and Integers 2008</b>	<b>Notes</b>
<b>Section 6: Subtracting Integers</b>	
In This Topic	
Markers... An Introduction to Subtraction	Review Opposites Example 1 Example 2 Example 3 Example 4 Example 5 Example 6 Example 7 Example 8
Elevators... An Introduction to Subtraction	The Pattern Example 1 Example 2 Example 3 Example 4
Summary... Add the Opposite	Summary... Using Elevators
Example Questions	Example 1... With Brackets Example 2... With Brackets Example 3... Without Brackets Example 4... Without Brackets Example 5... Without Brackets Example 6... Without Brackets Summary From Example 3 and 6
Going for a Walk	Preliminary The Walk David's Trip Part 1 David's Trip Part 2
Word Problems	Summary The Sailboat
Practice Questions	The Bank 10 questions (randomly generated)



**Understanding Fractions 2008**

**Section 11: Dividing Fractions**

Patterns from Examples

Another Explanation

Example 1

Example 2

**Notes**

**Understanding Exponents 2008**

**Section 3: Exponent Rules**

In The Topic

Multiplication of Powers with the Same Base

Expanding the Exponents

The Pattern

In General

Division of Powers with the Same Base

Expanding the Exponents

The Pattern

In General

Raising a Power to an Exponent

Expanding the Exponents

The Pattern

In General

Raising a Product to an Exponent

Expand the Exponent

In General

A Power with Exponent 0

Explanation with b

Explanation with a

Summary

A Power with a NEGATIVE Exponent

Method 1 - Explanation with b

Method 1 - Explanation with k

Method - Bacteria Doubling

Summary

Summary of Exponent Rules

Powers with Rational Bases

Example 1

Example 2

Example 3

In General

Example Questions

Example 1

Example 2

Example 3

Example 4

Example 5

Example 6

Example 7

Example 8

Example 9

Example 10

Example 11

Practice Questions

10 questions (randomly generated)

**Notes**



<b>Understanding Exponents 2008</b>	<b>Notes</b>
<p><b>Section 5 : Square Root</b></p> <p>Square Roots</p> <p>Radical Signs</p> <p>Square Roots of Negative Numbers</p> <p>Example Questions</p> <p>Practice Questions</p> <p><b>Note:</b> <i>The concept of raising to a fractional power is not covered in the current program.</i></p>	<p>1. Radicals First</p> <p>2. The Four Equations</p> <p>3. Lawn Questions</p> <p>4. Make a Square</p> <p>10 questions (randomly generated)</p>

**3.0 Students solve equations and inequalities involving absolute values.**

<b>Understanding Equations 2008</b>	<b>Notes</b>
<p><b>Section 8: Solving Absolute Value Equations</b></p> <p>Absolute Value... What is it?</p> <p>Absolute Value Equations in 1 Variable</p> <p>Absolute Value Inequalities in 1 Variable</p> <p>Absolute Value Equations in 2 Variable</p> <p>Practice Questions</p> <p><b>Note:</b> <i>Inequalities involving absolute values are not included in the current program.</i></p>	<p>Concept</p> <p>Example 1</p> <p>Example 2</p> <p>Summary</p> <p>Example 1</p> <p>Example 2</p> <p>Example 1</p> <p>Example 2</p> <p>Example 1</p> <p>Example 2</p> <p>10 questions (randomly generated)</p>

**4.0 Students simplify expressions before solving linear equations and inequalities in one variable, such as  $3(2x-5) + 4(x-2) = 12$ .**

<b>Understanding Equations 2008</b>	<b>Notes</b>
<p><b>Section 1: Tiles, Balances and Equations</b></p> <p>Definitions</p> <p>The Meaning of "Solving an Equation"</p> <p>Solve by Systematic Trials</p>	<p>Introduction</p> <p>Summary 1</p> <p>Summary 2</p>



Recall Tile Concepts  
Balances... An Introduction  
Tiles, Balances, Equations  
Practice Questions 5 questions (randomly generated)

**Understanding Equations 2008**

**Notes**

**Section 2: Solving One-Step Equations**

Our Problem  
Concept - Examples with Tiles Example 1  
Example 2  
Example 3  
Example 4  
Example 5  
Concept - Examples without Tiles Example 1  
Example 2  
Example 3  
Example 4  
Example 5  
Practice Questions 10 questions (randomly generated)

**Understanding Equations 2008**

**Notes**

**Section 3: Solving Two-Step Equations**

Our Problem  
Concept - Examples with Tiles Example 1  
Example 2  
Example 3  
Example 4  
Concept - Examples without Tiles Example 1  
Example 2  
Example 3  
Example 4  
Example 5  
Example 6  
Practice Questions 10 questions (randomly generated)

**Understanding Equations 2008**

**Notes**

**Section 7: Solving Inequalities**

Comparing Integers  
The Integer Line  
Example 1... Greater Than  
Example 2... Less Than  
Explanation  
Example 3... Greater Than  
Example 4... Less Than  
Greater Than or Less Than



Inequalities	What Are They? Inequalities vs. Equations Summary of Relationships
Inequalities on a Number Line	Example 1 Example 2 Example 3 Example 4
Solving Inequalities	Example 1 Example 2 Example 3 Example 4 Example 5 Example 6

**5.0 Students solve multistep problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.**

<b>Understanding Equations 2008</b>		<b>Notes</b>
<b>Section 4: Solving Multi-Step Equations</b>		
Our Problem		
Concept - Examples with Tiles		
Concept - Examples without Tiles	Example 1 Example 2 Example 3 Example 4 Example 5	
Summary		
Literal Equations	What Are They? How Do You Solve Them? Why Solve the Literal Equation? A Perimeter Example A Temperature Example	
Practice Questions	6 questions (randomly generated)	
<b>Understanding Equations 2008</b>		<b>Notes</b>
<b>Section 5: Problem Solving</b>		
Words and Symbols		
The Translation Machine	Example 1 Example 2 Example 3 Example 4	



The Trick Machine	Instructions
	The Machine
	Explanations with Picture
	Explanation with Symbols
Expressions - The Language of Algebra	Example 1
	Example 2
	Example 3
Area of Walls	
Chemistry	
Pool Puzzler - The First Problem	
Perimeter Problem with Diagram	
Fish Problem with Diagram	
Money Problem with Chart	
Age Problem with Chart	
Buying CDs	
Meat Mixture	
Coffee Mixture	
Rate of Work	
Summary - Problem Solving Using Equations	
Practice Questions	11 questions (randomly generated)

**6.0 Students graph a linear equation and compute the x- and y-intercepts (e.g., graph  $2x + 6y = 4$ ). They are also able to sketch the region defined by linear inequality (e.g., they sketch the region defined by  $2x + 6y < 4$ ).**

**Note:** *Computing the x-intercept and y-intercept for given equations is not covered in current programs as a separate topic.*

**Understanding Graphing 2008**

**Section 8: Equation of a Straight Line**

**Notes**

Graph  $y = mx + b$

Example 1  
 Example 2  
 Example 3  
 Example 4  
 Patterns to Summary

Slope, Y-intercept Equations

Example 5  
 Example 6  
 Example 7  
 Example 8  
 Concept  
 Example 1  
 Example 2



Exercise: Slope, Y-intercept	Example 3 Example 4 Concept Example 1 Example 2 Example 3 Example 4	
<b>Understanding Equations 2008</b> <b>Section 7: Solving Inequalities</b>		<b>Notes</b>
Solving Inequalities	Example 1 Example 2 Example 3 Example 4 Example 5 Example 6	
Solving Compound Inequalities	Example 1 Example 2	
Graphing Linear Inequalities in Two Variables	Concept 1 Concept 2 Example 1 Example 2 Example 3	
Solving Systems of Linear Inequalities by Graphing	Example 1	
Linear Programming	Example 2 What is it? A Fund Raising Example The Objective Function- What is it? The Objective Function- Example 1 The Objective Function- Example 2	
Practice Questions	10 questions (randomly generated)	

**7.0 Students verify that a point lies on a line, given an equation of the line. Students are able to derive linear equations by using the point-slope formula.**

<b>Understanding Graphing 2008</b> <b>Section 8: Equation of a Straight Line</b>		<b>Notes</b>
Slope-Point Form of the Equation	Example 1- Solution 1 Example 1- Solution 2 Example 2- Solution 1 Example 2- Solution 2	



Example 2- Solution 3

Example 2- Solution 4

Examples to Summarize

Match: Graph, Equation, Points, Story (randomly generated)

**8.0 Students understand the concepts of parallel lines and perpendicular lines and how those slopes are related. Students are able to find the equation of a line perpendicular to a given line that passes through a given point.**

**Understanding Graphing 2008**

**Notes**

**Section 7: Slope of a Line**

Parallel Lines

Introduction

Example 1

Example 2

Example 3

Perpendicular Lines

Introduction

Example 1

Example 2

Example 3

Slope of Parallel Lines

Example 1

Example 2

Example 3

Slope of Perpendicular Lines

Example 1

Example 2

Example 3

Pattern

**Understanding Graphing 2008**

**Notes**

**Section 8: Equation of a Straight Line**

Parallel and Perpendicular Lines

Concept 1

Concept 2

Example 1

Example 2

Example 3

Example 4

***Note: Finding the equation of a line perpendicular to a given line that passes through a given point is not covered in current programs.***



**9.0 Students solve a system of two linear equations in two variables algebraically and are able to interpret the answer graphically. Students are able to solve a system of two linear inequalities in two variables and to sketch the solution sets.**

<b>Understanding Equations 2008</b>		<b>Notes</b>
<b>Section 6: Solving Linear Systems</b>		
About This Topic		
The Meaning of a Linear System		
The Meaning of Solving a Linear System		
Solving a Linear System by Graphing	Example 1: Intersecting Lines Example 2: Intersecting Lines Example 3: Intersecting Lines Involving Fractions Example 4: Intersecting Lines Involving Fractions Example 5: Parallel Lines Example 6: Coincidental Lines	
Solving a Linear System by Substitution	Example 1: Intersecting Lines Example 2: Intersecting Lines Example 3: Intersecting Lines Involving Fractions Example 4: Intersecting Lines Involving Fractions Example 5: Parallel Lines Example 6: Coincidental Lines	
Solving a Linear System by Elimination	Example 1: Intersecting Lines Example 2: Intersecting Lines Example 3: Intersecting Lines Involving Fractions Example 4: Intersecting Lines Involving Fractions Example 5: Parallel Lines Example 6: Coincidental Lines	
Solving a Linear System by Comparison	Example 1: Intersecting Lines Example 2: Intersecting Lines Example 3: Intersecting Lines Involving Fractions Example 4: Intersecting Lines Involving Fractions Example 5: Parallel Lines Example 6: Coincidental Lines	
Solving Problems Using Linear Systems	Example 1- Beginning of Question Example 1- Draw Graph Example 2- Beginning of Question Example 2- Draw Graph	
Practice Questions	10 questions (randomly generated)	
<b>Understanding Equations 2008</b>		<b>Notes</b>
<b>Section 7: Solving Inequalities</b>		
Comparing Integers	The Integer Line Example 1... Greater Than Example 2... Less Than	



	Explanation
	Example 3... Greater Than
	Example 4... Less Than
	Greater Than or Less Than
Inequalities	What Are They?
	Inequalities vs. Equations
	Summary of Relationships
Inequalities on a Number Line	Example 1
	Example 2
	Example 3
	Example 4
Solving Inequalities	Example 1
	Example 2
	Example 3
	Example 4
	Example 5
	Example 6
Solving Compound Inequalities	Example 1
	Example 2
Graphing Linear Inequalities in Two Variables	Concept 1
	Concept 2
	Example 1
	Example 2
	Example 3
Solving Systems of Linear Inequalities by Graphing	Example 1
	Example 2
Linear Programming	What is it?
	A Fund Raising Example
	The Objective Function- What is it?
	The Objective Function- Example 1
	The Objective Function- Example 2
Practice Questions	10 questions (randomly generated)

**10.0 Students add, subtract, multiply, and divide monomials and polynomials. Students solve multistep problems, including word problems, by using these techniques.**

<b>Understanding Algebra 2008</b>		<b>Notes</b>
<b>Section 5: Adding Expressions</b>		
Our Problem		
Adding Expressions with X and Y Tiles	Example 1	
	Example 2	
	Example 3	



Adding Expressions with X-Squared Tiles	Example 1 Example 2 Example 3
Adding Expressions without Tiles	Example 1 Example 2
Practice Questions With Tiles	3 questions (randomly generated)
Practice Questions Without Tiles	10 questions (randomly generated)

**Understanding Algebra 2008**

**Section 6: Subtracting Expressions**

**Notes**

Our Problem	
Subtracting Expressions With X and Y Tiles	Concept Example 1 Example 2
Subtracting Expressions With X-Squared Tiles	Example 1 Example 2
Subtracting Expressions Without Tiles	
Practice Questions With Tiles	3 questions (randomly generated)
Practice Questions Without Tiles	10 questions (randomly generated)

**Understanding Algebra 2008**

**Section 7: Multiplying Expressions**

**Notes**

Our Problem	
Recall Tile Concept	
Multiplying Monomials	Powers- Concept Powers- Example 1 Powers- Example 2 Powers- Example 3 Powers- Example 4 With Tiles- Example 1 With Tiles- Example 2 With Tiles- Example 3 Without Tiles
Multiplying Monomials and Binomials	With Tiles- Example 1 With Tiles- Example 2 With Tiles- Example 3 With Tiles- Example 4 Without Tiles
Multiplying Binomials	With Tiles- Example 1 With Tiles- Example 2 Without Tiles
Examples... True or False	Pattern (FOIL) Example 1 Example 2



Examples	Example 3 Example 1 Example 2 Example 3 Example 4 Example 5
Squaring a Binomial	Examples- Example 1 with Tiles Examples- Example 1 without Tiles Examples- Example 2 with Tiles Examples- Example 2 without Tiles Examples- Example 3 without Tiles Examples- Example 4 without Tiles The Pattern An Example
Practice Questions	10 questions (randomly generated)

**Understanding Algebra 2008**  
**Section 9: Dividing Expressions**

**Notes**

Dividing a Monomial by a Monomial	Example 1 Example 2 Example 3 Example 4
Dividing a Polynomial by a Monomial	Concept Example 1 Example 2 Example 3 Summary
Dividing a Polynomial by a Binomial	Example 1... Method 1 Example 1... Method 2... Long Division Example 2 Example 3... Method 1 Example 3... Method 2... Long Division Example 4... Method 1 Example 4... Method 2... Long Division
Combination Questions	Example 1 Example 2 Example 3 Example 4
Practice Questions	10 questions (randomly generated)



**11.0 Students apply basic factoring techniques to second- and simple third-degree polynomials. These techniques include finding a common factor for all terms in a polynomial, recognizing the difference of two squares, and recognizing perfect squares of binomials.**

<b>Understanding Algebra 2008</b>	<b>Notes</b>
<b>Section 8: Factoring Expressions</b>	
Our Problem	
Common Factoring	With Tiles- Example 1 - Method 1 With Tiles- Example 1 - Method 2 With Tiles- Example 1 - Method 1 With Tiles- Example 2 - Method 2 Without Tiles- Greatest Common Factor
Factoring Trinomials	Without Tiles- Example 1 Without Tiles- Example 2 With Tiles- Example 1 With Tiles- Example 2 The Pattern Without Tiles- Example 1 Without Tiles- Example 2 Without Tiles- Example 3 Without Tiles- Example 4
Difference of Squares	Example 1 Example 2 Example 3 Example 4
Factoring by Grouping	Concept Example 1 Example 2 Example 3 Example 4
Summary	Example 5 Example 1 Example 2 Example 3 Example 4
Practice Questions	10 questions (randomly generated)



**12.0 Students simplify fractions with polynomials in the numerator and denominator by factoring both and reducing them to the lowest terms.**

<b>Understanding Algebra 2008</b>		<b>Notes</b>
<b>Section 9: Dividing Expressions</b>		
Dividing a Monomial by a Monomial	Example 1 Example 2 Example 3 Example 4	
Dividing a Polynomial by a Monomial	Concept Example 1 Example 2 Example 3 Summary	
Dividing a Polynomial by a Binomial	Example 1... Method 1 Example 1... Method 2... Long Division Example 2 Example 3... Method 1 Example 3... Method 2... Long Division Example 4... Method 1 Example 4... Method 2... Long Division	
Combination Questions	Example 1 Example 2 Example 3 Example 4	
Practice Questions	10 questions (randomly generated)	

**13.0 Students add, subtract, multiply, and divide rational expressions and functions. Students solve both computationally and conceptually challenging problems by using these techniques.**

**Note: The topic of adding, subtracting, multiplying, and dividing rational expressions and functions has been covered in depth in previous grade correlations. Understanding Fractions Sections 8, 9, 10, 11 and 13 may be used to review basic operations and problem solving with fractions. The following correlations apply to appropriate review items and the skills being developed at this level.**

<b>Understanding Algebra 2008</b>		<b>Notes</b>
<b>Section 5: Adding Expressions</b>		
Our Problem		
Adding Expressions with X and Y Tiles	Example 1 Example 2 Example 3	



Adding Expressions with X-Squared Tiles	Example 1 Example 2 Example 3
Adding Expressions without Tiles	Example 1 Example 2
Practice Questions With Tiles	3 questions (randomly generated)
Practice Questions Without Tiles	10 questions (randomly generated)

**Understanding Algebra 2008**

**Section 6: Subtracting Expressions**

Our Problem	
Subtracting Expressions With X and Y Tiles	Concept Example 1 Example 2
Subtracting Expressions With X-Squared Tiles	Example 1 Example 2
Subtracting Expressions Without Tiles	
Practice Questions With Tiles	3 questions (randomly generated)
Practice Questions Without Tiles	10 questions (randomly generated)

**Notes**

**Understanding Algebra 2008**

**Section 7: Multiplying Expressions**

Our Problem	
Recall Tile Concept	
Multiplying Monomials	Powers- Concept Powers- Example 1 Powers- Example 2 Powers- Example 3 Powers- Example 4 With Tiles- Example 1 With Tiles- Example 2 With Tiles- Example 3 Without Tiles
Multiplying Monomials and Binomials	With Tiles- Example 1 With Tiles- Example 2 With Tiles- Example 3 With Tiles- Example 4 Without Tiles
Multiplying Binomials	With Tiles- Example 1 With Tiles- Example 2 Without Tiles
Examples... True or False	Pattern (FOIL) Example 1 Example 2

**Notes**



Examples	Example 3 Example 1 Example 2 Example 3 Example 4 Example 5
Squaring a Binomial	Examples- Example 1 with Tiles Examples- Example 1 without Tiles Examples- Example 2 with Tiles Examples- Example 2 without Tiles Examples- Example 3 without Tiles Examples- Example 4 without Tiles The Pattern An Example
Practice Questions	10 questions (randomly generated)

**Understanding Algebra 2008**

**Section 9: Dividing Expressions**

Dividing a Monomial by a Monomial	Example 1 Example 2 Example 3 Example 4
Dividing a Polynomial by a Monomial	Concept Example 1 Example 2 Example 3 Summary
Dividing a Polynomial by a Binomial	Example 1... Method 1 Example 1... Method 2... Long Division Example 2 Example 3... Method 1 Example 3... Method 2... Long Division Example 4... Method 1 Example 4... Method 2... Long Division
Combination Questions	Example 1 Example 2 Example 3 Example 4
Practice Questions	10 questions (randomly generated)

**Notes**



**14.0 Students solve a quadratic equation by factoring or completing the square.**

<b>Understanding Graphing 2008</b>		<b>Notes</b>
<b>Section 9: Quadratic Function</b>		
Completing the Square - With Tiles	Recall - Squaring a Binomial Recall - Factoring a Perfect Square Trinomial Examples- Example 1 Examples- Example 2	
Completing the Square - The Pattern		
Completing the Square - Examples	Example 1 Example 2 Example 3 Example 4 Example 5 Example 6 Example 7	
Completing the Square to Find Role of b	Example 1 Example 2 Example 3 Example 4 Summary and Patterns In General	
Intercepts of a Quadratic Function	Graphing - Method 2: Factoring (If Possible) Graphing - Method 2: Factoring (If Possible)	
<b>Understanding Algebra 2008</b>		<b>Notes</b>
<b>Section 8: Factoring Expressions</b>		
Factoring Trinomials	With Tiles- Example 1 With Tiles- Example 2 The Pattern Without Tiles- Example 1 Without Tiles- Example 2 Without Tiles- Example 3 Without Tiles- Example 4	
Difference of Squares	Example 1 Example 2 Example 3 Example 4	



**15.0 Students apply algebraic techniques to solve rate problems, work problems, and percent mixture problems.**

<b>Understanding Equations 2008</b>	<b>Notes</b>
<p><b>Section 5: Problem Solving</b></p> <ul style="list-style-type: none"> <li>Meat Mixture</li> <li>Coffee Mixture</li> <li>Rate of Work</li> <li>Summary - Problem Solving Using Equations</li> <li>Practice Questions</li> </ul>	11 questions (randomly generated)

**16.0 Students understand the concepts of a relation and a function, determine whether a given relation defines a function, and give pertinent information about given relations and functions.**

<b>Understanding Graphing 2008</b>	<b>Notes</b>
<p><b>Section 5 : Relations, Equations and Functions</b></p> <p>In This Topic</p> <ul style="list-style-type: none"> <li>Relations</li> <li>Functions</li>   <li>Vertical Line Test</li>   <li>Function Notation</li> </ul>	<ul style="list-style-type: none"> <li>What is a Relation?</li> <li>What is a Function?</li> <li>Example 1</li> <li>Example 2</li> <li>Example 3</li> <li>Example 1</li> <li>Example 2</li> <li>Example 3</li> <li>Example 1</li> <li>Example 2</li> </ul>

**17.0 Students determine the domain of independent variables and the range of dependent variables defined by a graph, a set of ordered pairs, or a symbolic expression.**

<b>Understanding Graphing 2008</b>	<b>Notes</b>
<p><b>Section 5 : Relations, Equations and Functions</b></p> <p>In This Topic</p> <ul style="list-style-type: none"> <li>Relations</li>   <li>Functions</li> </ul>	<ul style="list-style-type: none"> <li>What is a Relation?</li> <li>Domain and Range</li> <li>Example 1: Triangle- Display the Relation</li> <li>What is a Function?</li> </ul>



**18.0 Students determine whether a relation defined by a graph, a set of ordered pairs, or a symbolic expression is a function and justify the conclusion.**

<b>Understanding Graphing 2008</b>	<b>Notes</b>
<b>Section 5 : Relations, Equations and Functions</b>	
In This Topic	
Relations	What is a Relation?
Functions	What is a Function?
	Example 1
	Example 2
	Example 3
Vertical Line Test	Example 1
	Example 2
	Example 3
Function Notation	Example 1
	Example 2

**19.0 Students know the quadratic formula and are familiar with its proof by completing the square.**

<b>Understanding Graphing 2008</b>	<b>Notes</b>
<b>Section 9: Quadratic Function</b>	
Completing the Square - With Tiles	Recall - Squaring a Binomial
	Recall - Factoring a Perfect Square Trinomial
	Examples- Example 1
	Examples- Example 2
Completing the Square - The Pattern	
Completing the Square - Examples	Example 1
	Example 2
	Example 3
	Example 4
	Example 5
	Example 6
	Example 7
Completing the Square to Find Role of b	Example 1
	Example 2
	Example 3
	Example 4
	Summary and Patterns
	In General



**20.0 Students use the quadratic formula to find the roots of a second-degree polynomial and to solve quadratic equations.**

<b>Understanding Graphing 2008</b>		<b>Notes</b>
<b>Section 9: Quadratic Function</b>		
Examples	Example 1 Example 2	
Practice Questions	5 questions (randomly generated)	

**21.0 Students graph quadratic functions and know that their roots are the x-intercepts.**

<b>Understanding Graphing 2008</b>		<b>Notes</b>
<b>Section 9: Quadratic Function</b>		
Intercepts of a Quadratic Function	Graphing - Method 1: Graphing - Method 1: Graphing - Method 2: Factoring (If Possible) Graphing - Method 2: Factoring (If Possible) Graphing - Method 3: Using the Quadratic Formula Graphing - Method 3: Using the Quadratic Formula	

**22.0 Students use the quadratic formula or factoring techniques or both to determine whether the graph of a quadratic function will intersect the x-axis in zero, one, or two points.**

<b>Understanding Graphing 2008</b>		<b>Notes</b>
<b>Section 9: Quadratic Function</b>		
Completing the Square - With Tiles	Recall - Squaring a Binomial Recall - Factoring a Perfect Square Trinomial Examples- Example 1 Examples- Example 2	
Completing the Square - The Pattern		
Completing the Square - Examples	Example 1 Example 2 Example 3 Example 4 Example 5 Example 6 Example 7	
Completing the Square to Find Role of b	Example 1 Example 2 Example 3	



<p>Intercepts of a Quadratic Function</p> <p>Examples</p> <p>Practice Questions</p> <p><b>Understanding Algebra 2008</b> <b>Section 8: Factoring Expressions</b> Factoring Trinomials</p> <p>Difference of Squares</p>	<p>Example 4 Summary and Patterns In General Graphing - Method 1: Graphing - Method 1: Graphing - Method 2: Factoring (If Possible Graphing - Method 2: Factoring (If Possible Graphing - Method 3: Using the Quadratic Formula Graphing - Method 3: Using the Quadratic Formula Example 1 Example 2 5 questions (randomly generated)</p> <p>With Tiles- Example 1 With Tiles- Example 2 The Pattern Without Tiles- Example 1 Without Tiles- Example 2 Without Tiles- Example 3 Without Tiles- Example 4 Example 1 Example 2 Example 3 Example 4</p>	<p><b>Notes</b></p>
--	--	---------------------

**23.0 Students apply quadratic equations to physical problems, such as the motion of an object under the force of gravity.**

<p><b>Understanding Graphing 2008</b> <b>Section 9: Quadratic Function</b> Maximize Cage Area</p> <p>Maximize Potato Income</p>	<p>By Trial and Error Use Quadratic Function Graph Conclusions Summary By Trial and Error By Quadratic Function By Quadratic Function: Graph By Quadratic Function: Summary</p>	<p><b>Notes</b></p>
---	---	---------------------



Bob's Beach ball	Find Maximum Height Graph Equation Summary
Hit the Brakes	Derive Equation Graph Equation Summary

**24.0 Students use and know simple aspects of a logical argument:**

24.1 Students explain the difference between inductive and deductive reasoning and identify and provide examples of each.

Not yet correlated

24.2 Students identify the hypothesis and conclusion in logical deduction.

Not yet correlated

24.3 Students use counterexamples to show that an assertion is false and recognize that a single counterexample is sufficient to refute an assertion.

Not yet correlated

**25.0 Students use properties of the number system to judge the validity of results, to justify each step of a procedure, and to prove or disprove statements:**

25.1 Students use properties of numbers to construct simple, valid arguments (direct and indirect) for, or formulate counterexamples to, claimed assertions.

Not yet correlated

25.2 Students judge the validity of an argument according to whether the properties of the real number system and the order of operations have been applied correctly at each step.

**Understanding Whole Numbers and Integers 2008**

**Notes**

**Section 9: Order of Operations**

Why Use Order of Operations? - Whole Numbers

Why Use Order of Operations? - Integers

BEDMAS

Please Excuse My Dear Aunt Sally



Example Questions - Whole Numbers

- BEDMAS- Example 1
- BEDMAS- Example 2
- BEDMAS- Example 3
- BEDMAS- Example 4
- BEDMAS- Example 5
- BEDMAS- Example 6
- BEDMAS- Example 7
- BEDMAS- Example 8
- BEDMAS- Example 9
- BEDMAS- Example 10
- Please Excuse My Dear Aunt Sally- Example 1
- Please Excuse My Dear Aunt Sally- Example 2
- Please Excuse My Dear Aunt Sally- Example 3
- Please Excuse My Dear Aunt Sally- Example 4
- Please Excuse My Dear Aunt Sally- Example 5
- Please Excuse My Dear Aunt Sally- Example 6
- Please Excuse My Dear Aunt Sally- Example 7
- Please Excuse My Dear Aunt Sally- Example 8
- Please Excuse My Dear Aunt Sally- Example 9
- Please Excuse My Dear Aunt Sally- Example 10

Example Questions - Integers

- BEDMAS- Example 1
- BEDMAS- Example 2
- BEDMAS- Example 3
- BEDMAS- Example 4
- BEDMAS- Example 5
- BEDMAS- Example 6
- BEDMAS- Example 7
- BEDMAS- Example 8
- BEDMAS- Example 9
- BEDMAS- Example 10
- Please Excuse My Dear Aunt Sally- Example 1
- Please Excuse My Dear Aunt Sally- Example 2
- Please Excuse My Dear Aunt Sally- Example 3
- Please Excuse My Dear Aunt Sally- Example 4
- Please Excuse My Dear Aunt Sally- Example 5
- Please Excuse My Dear Aunt Sally- Example 6
- Please Excuse My Dear Aunt Sally- Example 7
- Please Excuse My Dear Aunt Sally- Example 8
- Please Excuse My Dear Aunt Sally- Example 9
- Please Excuse My Dear Aunt Sally- Example 10



25.3 Given a specific algebraic statement involving linear, quadratic, or absolute value expressions or equations or inequalities, students determine whether the statement is true sometimes, always, or never.

<b>Understanding Graphing 2008</b>		<b>Notes</b>
<b>Section 8: Equation of a Straight Line</b>		
Slope, Y-intercept Equations	Concept Example 1 Example 2 Example 3 Example 4	
Exercise: Slope, Y-intercept	Concept Example 1 Example 2 Example 3 Example 4	
Parallel and Perpendicular Lines	Concept 1 Concept 2 Example 1 Example 2 Example 3 Example 4	
Slope-Point Form of the Equation	Example 1- Solution 1 Example 1- Solution 2 Example 2- Solution 1 Example 2- Solution 2 Example 2- Solution 3 Example 2- Solution 4	
Special Cases	Example 1... Zero Slope Example 2... Undefined Slope	
Examples to Summarize		
<b>Understanding Graphing 2008</b>		
<b>Section 9: Quadratic Function</b>		
Introductory Examples	Example 1 Example 2 Summary- Example 1 Summary- Example 2	
Definitions	Parabolas Quadratic Functions	
The Role of a	The Plan a = 1,2,3 a = -1,-2,-3 Parabolas with the Same Width	
The Role of c	Summary The Plan	



Examples	Increase c Summary Example 1 Example 2	
<b>Understanding Equations 2008</b>		<b>Notes</b>
<b>Section 7: Solving Inequalities</b>		
Solving Inequalities	Example 1 Example 2 Example 3 Example 4 Example 5 Example 6	
Solving Compound Inequalities	Example 1 Example 2	
<b>Understanding Equations 2008</b>		<b>Notes</b>
<b>Section 8: Solving Absolute Value Equations</b>		
Absolute Value... What is it?	Concept Example 1 Example 2 Summary	
Absolute Value Equations in 1 Variable	Example 1 Example 2	
Absolute Value Inequalities in 1 Variable	Example 1 Example 2	
Absolute Value Equations in 2 Variable	Example 1 Example 2	
Practice Questions	10 questions (randomly generated)	

