## MATHEMATICS 1100

Algebra II

## 1101

Sets, Structure, and Function

## Sets

Properties
Operations

## Structure

Axioms
Applications
Relations and Functions
Definitions
Graphs
Function Notation
Inverses
Algebraic Expressions
Exponents
Combining Terms

Real Numbers

## Real Numbers

Rational and Irrational Numbers
Laws of Radicals
Conjugates
Radical Equations

## Quadratic Equations

Using the Square Root Property
Factoring
Completing the Square

## Quadratic Formula

Derivation of the Quadratic Formula
Word Problems
Sum and Product of Roots
Discriminant
Complex Numbers

1102
Numbers, Sentences, and Problems

## Numbers

Order and Absolute Value
Sums and Products

## Sentences

Solving Equations
Solving Inequalities
Compound Sentences

## Application

Number Problems
Motion Problems
Miscellaneous Problems

## 1107

Quadratic Relations and Systems
Distance Formula and Conic

## Sections

Distance Formula
Circle
Ellipse
Conic Sections and Identification
Parabola
Hyperbola
Identification of Solid Sections
Systems, Inequalities, and Applications
Systems of Equations
Inequalities
Applications of Conic Sections
1103

Linear Equations and Inequalities

## Lines

## Graphs

Equations
Systems of Equations
Solutions
Applications

## Inequalities

Solving Inequalities
Solving Two-Order Inequalities

## 1108

Exponential Functions

## Exponential Functions

Exponents
Exponential equations
Applications
Logarithmic Functions
Definition of Logarithms
Mantissas
General Properties of Logarithms Calculation of Common Logarithms Graphs of Logarithmic Functions (OPTIONAL) Computation with Logarithms
(OPTIONAL) Applications

## Matrices

Matrix Solution of Systems of Linear Equations
Addition and Multiplication of Matrices

## 1104

Polynomials
Products and Favoring
Multiplying With Monomials
Multiplying Polynomials by
Polynomials
Using Special Products
Factoring Trinomials
Factoring Special Products

## Operations

Division With Polynomials
Synthetic Division

## Variations

Direct Variations
Inverse Variations
Joined and Combined Variations

## 1109

Counting Principles

## Progressions

Sequences
Series

## Permutations

Factorials
Permutation Formula
Applications
Combinations
Combination Formula
Applications
Binomial Coefficients

## Probability

Concepts
Equally Likely Outcomes
Multiplication Principle
Conditional Probability

1105
Algebraic Fractions

## ultiplying and Dividing With

 FractionsZero and Negative Exponents Reducing Rational Expressions Multiplying Algebraic Fractions Dividing Algebraic Fractions

## Adding and Subtracting Algebraic

 FractionsLowest Common Denominator
Addition and Subtraction
Mixed Expressions and Complex Fractions

## Equations With Fractions

Equations With Fractions
Fractional Equations
Proportions
Applications of Fractions
Motion Problems
Mixture Problems
Work Problems

## 1110

Algebra II Review
Integers, Open Sentences, and Graphs
Integers
Open Sentences
Graphs
Polynomials, Fractions, and Real Numbers
Polynomials
Algebraic Fractions
Real Numbers
Quadratic Relations, Exponential Functions, and Counting Principles
Quadratic Relations and Systems
Exponential Functions
Counting Principles

