

Villa Victoria Academy
Projected Instructional Plan
MASTER PLAN FOR HONORS ALGEBRA I
Algebra Structure and Method Book 1
Brown, Dolciani, Sorgenfrey, Cole

Quarter 1:

Unit 1 Preliminary topics

Venn diagram on sets of numbers
 Properties, Axioms, Definitions related to Real numbers
 Operations on signed numbers
 Order of operations
 Exponential notation
 Writing expressions from word statements

Unit 2 Properties of exponents

Prime and composite numbers and factors
 The operation of exponentiation
 Products, powers and quotients
 Negative and zero exponents
 Powers of ten and scientific notation

Unit 3 Polynomials and operations on polynomials

Introduction to polynomials(structure, name, degree)
 Add and sub polynomials
 Products(mono*bi, bi*bi, bi*tri, tri*tri)
 Squaring a binomial
 Division(short and long)
 Factoring: GCF
 Difference of 2 squares
 Trinomial squares
 Quadratic trinomials (all types)
 Factoring by grouping
 Negative one technique

Unit 4 Radicals and operations with radicals

Radicals and irrational numbers and the closure axiom
 Evaluating radical expression
 Intro to radical algebraic expressions
 Operations on radicals (add, sub, mult, divide, rationalize)
 Simplifying radicals which contain algebraic expressions
 Higher order radicals

Unit 5 Rational algebraic expressions

Definition of rational algebraic expressions
 Issue of domain
 Simplifying rational algebraic expressions
 Finding the GCF and the LCM for rational algebraic expressions
 Operations: add and sub (like and unlike denominators), mult and divide
 Combined operations

Quarter 2:

Unit 6 Solving equations

Concept of transforming an equation
 Equations with two transformations
 Equations with like terms and distributing
 Equations with like terms in both members
 Equations with fractions and decimals
 Literal equations and formulas
 Absolute value
 Equations containing squares, trinomial squares, and completing the square
 Using the quadratic formula
 The discriminant and its meaning
 Solving equations by factoring
 Fractional and Rational equations
 Extraneous solutions
 Radical equations

Unit 7 Solving Inequalities

Number line graphs
 Solving 1st degree inequalities
 Compound inequalities
 Absolute value inequalities
 Evaluate an inequality
 Solving quadratic inequality by factoring, completing the square
 and by the quadratic formula.

Quarter 3:**Unit 8 Graphs of Linear equations or Inequalities, and Quadratic equations**

Evaluating expressions in two variable
 The Cartesian coordinate system and vocabulary
 Slope and y intercept of a line
 Graph of linear from t chart and rapid graphing
 Intercepts
 Forms of the linear equation
 Finding an equation from the graph
 Linear functions
 Linear inequalities in two variables
 Graphs of quadratic functions (vertex, intercepts, symmetrical point)

Unit 9 Systems

Finding intersection of two linear equations by graphing
 Solving the 2X2 system by substitution, linear combination
 *Cramer's rule
 Graphing systems of linear inequalities

Quarter 4:**Unit 10 Problem solving**

Problems that lead to simple equations
to two transformation problems
to more than one expression

Vertical motion

Problems with two variables

Problems with scientific notation

Thematic problems: age
consecutive values
digits
coin (mixture of values)
motion (downstream, upstream, etc)
relative rates
geometry figures

Ratio and proportion

Pythagorean theorem and applications

Direct and inverse variation

Unit 11 Functions

Definition of function

Vertical line test

Domain and Range

Determining the value of a function