Alg1 Syllabus (Second Semester)

Unit 11: Inequality review
Advanced inequalities

Lesson 01: Review of one-dimensional inequalities
Compound inequalities

Lesson 02: Graphing inequalities in two dimensions

Lesson 03: Solving systems of two-dimensional inequalities

Lesson 04: Inequality applications (word problems)

Cumulative review
Unit 11 review
Unit 11 test

Unit 12: Polynomials

Lesson 01: Adding and subtracting polynomials

Lesson 02: Multiplying monomials

Lesson 03: Raising monomials to a power

Lesson 04: Multiplying polynomials

Lesson 05: Mixed multiplication of polynomials and monomials
Geometry applications

Cumulative review
Unit 12 review
Unit 12 test

Unit 13: Dividing polynomials
Greatest common factor

Lesson 01: Dividing monomials

Lesson 02: Dividing polynomials by monomials
Negative exponents

Lesson 03: Finding the greatest common factor (GCF)

Lesson 04: Using GCF to factor polynomials

Cumulative review
Unit 13 review
Unit 13 test

Unit 14: Factoring trinomials

Lesson 01: Fundamentals of "box" factoring of trinomials
Sum and product practice

Lesson 02: Practice with the "box" technique of factoring trinomials

Lesson 03: More practice with trinomial factoring
Exceptional cases

Lesson 04: Factoring trinomials with two variables

Lesson 05: Difference of squares ($a^2 - b^2$)

Lesson 06: Mental factoring, $(a + b)^2$, $(a - b)^2$
Areas represented by trinomials

Cumulative review
Unit 14 review
Unit 14 test

Unit 15: Solving equations by factoring
Quadratic formula

Lesson 01: Solving equations by factoring
The degree of an equation

Lesson 02: More practice solving equations by factoring
Finding the roots (zeros) of a polynomial

Lesson 03: Solving equations using the Quadratic Formula

Lesson 04: More practice with the Quadratic Formula
The discriminant, special cases

Lesson 05: Applications of quadratic functions
Evaluating quadratic functions

Cumulative review
Unit 15 review
Unit 15 test

Unit 16: Graphing quadratic functions

Lesson 1: Quadratic graph (parabola) fundamentals

Lesson 2: Investigating the effect of *a* & *b* in $y = ax^2 + b$
Domain and range of quadratic functions

Lesson 3: Graphing quadratic functions on the calculator
Finding minimum and maximum points (vertex)

Lesson 4: Solving quadratic equations with a graphing calculator
(Finding roots)

Lesson 5: Evaluating quadratic functions (manually & calculator)
Putting it all together

Cumulative review
Unit 16 review
Unit 16 test

Unit 17: Exponential functions and radicals

Lesson 1: Graphs of exponential functions

Lesson 2: Exponential growth & decay word problems

Lesson 3: Square root fundamentals

Lesson 4: Simplification of variable radical expressions
Solving equations by taking the square root

Lesson 5: Adding and subtracting radicals

Lesson 6: Multiplying and dividing radicals

Cumulative review
Unit 17 review
Unit 17 test

Unit 18: Common word problems

Lesson 1: Distance, rate, and time type problems

Lesson 2: Coin type word problems

Lesson 3: Age type word problems

Lesson 4: Mixture type word problems

Lesson 5: Work type word problems

Cumulative review
Unit 17 review
Unit 17 test

Unit 19: Pythagorean theorem, distance & midpoint formulas
Area and volume

Lesson 1: The Pythagorean theorem, Pythagorean triples

Lesson 2: The distance formula

Lesson 3: The midpoint formula

Lesson 4: Special areas and volumes
Effects of scale factor changes

Cumulative review
Unit 19 review
Unit 19 test

Semester summary

Semester review
Semester test

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Enrichment Topics

Topic A: Commutative, distributive, and associative properties

Topic B: Inequality conjunctions and disjunctions

Topic C: Two dimensional inequalities

Topic D: Combining direct and indirect variations

Topic E: Scientific notation

Topic F: Greatest common factor (GCF) and least common multiple (LCM)

Topic G: Derivation of the Quadratic Formula

Topic H: Completing the square

Topic I: Statistics

Topic J: Conic section applications