

GaDOE Mathematics Curriculum

Comparison of QCC & GPS Course Content

Revised 11-29-07

QCC Courses	Algebra I Variables, algebraic expressions, linear equations and inequalities, radical and rational expressions, polynomials, linear and quadratic functions, systems of equations and inequalities, calculators and computers	Geometry Informal and formal logical reasoning processes including deductive and inductive reasoning; synthetic, coordinate, and transformational approaches to congruence; similarity, parallelism, symmetry, and perpendicularity; perimeter and area of 2-dimensional figures; surface area and volume of 3-dimensional figures; integration of algebraic skills and concepts to solve geometric problems	Algebra II Use of calculators and computers to assist problem solving; polynomial, exponential, and logarithmic functions; irrational and complex numbers; graphing; systems of linear equations and inequalities; quadratics; probability; statistics; sequences and series	Advanced Algebra and Trigonometry Enhancement of algebraic skills and introduction of trigonometry through calculators and computers; real and complex numbers; vectors; matrices; sequences; series; probability; statistics; conic sections; functions; and problem solving Analysis All topics included in Advanced Algebra and Trigonometry, further study of relations and functions, trigonometry, analytical geometry, complex numbers, set theory and logic	Statistics Applications of statistical methods in problem solving using data collected through experimentation, computer simulations, and various sources; opportunities to model statistical methods, derive probabilities, and make inferences; applications of statistics in real-life situations; examples of how misleading statistics could be better presented
6 th Grade GPS Mathematics	Factors and multiples; Fundamental Theorem of Arithmetic; GCF & LCM; compute with fractions and mixed numbers (unlike denominators); equivalent fractions, decimals, and percents; convert units using proportions Relationships between varying quantities; write & solve proportions; write & solve simple one-step equations; evaluate algebraic expressions Volume of rectangular prisms, cylinders, pyramids and cones; surface area of rectangular prisms and cylinders; line & rotational symmetry; ratio, proportion, and scale factor with similar plane figures; scale drawings; compare and contrast prisms, pyramids cylinders and cones; nets of prisms, cylinders, pyramids, and cones; 2-dimensional perspectives of 3 - dimensional objects Pose questions, collect data, and represent data using appropriate graphs; experimental and theoretical probability; make predictions from investigations				
7 th Grade GPS Mathematics	Absolute Value; compare & order rational numbers; compute & solve problems with positive and negative numbers; simplify and operate with algebraic expressions; understand and apply linear equations in one-variable; analyze relationships between two variables using tables, graphs, and formulas; direct and inverse proportions Basic constructions; transformations; properties of similarity; 3-D figures formed by translations and rotations in space; cross sections of cones, cylinders, pyramids, and prisms Pose questions, collect data, represent and analyze data; interpret results				
8 th Grade GPS Mathematics	Square roots of perfect squares; rational vs. irrational numbers; simplify expressions with integer exponents; scientific notation; represent, analyze, and solve problems; inequalities in one variable; relations and linear functions Properties of parallel and perpendicular lines; meaning of congruence; Pythagorean Theorem Set theory; tree diagrams, counting principles; basic laws of probability; organize, interpret, and make inferences from data				

The standards for middle school mathematics courses may be compacted to allow entry into high school level courses.
CRCTs must be taken at the appropriate grades levels as required.

Algebra I

Geometry

Algebra II

Advanced Algebra and Trigonometry and Analysis

Statistics

Calculus

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Mathematics I: Algebra/Geometry/Statistics	<p>Radical, polynomial, and rational expressions; quadratic, rational, and radical equations</p> <p>Argument and justification, including inductive and deductive reasoning; proof; discovery, proof and application of properties of polygons; use of the coordinate plane to investigate and verify properties of geometric figures</p> <p>Characteristics and transformations of functions and their graphs; sequences as functions</p> <p>Permutations and combinations; laws of probability; comparison of samples and population using summary statistics; mean absolute deviation</p>				
Accelerated Mathematics I: Geometry/Algebra II/Statistics	<p>Radical, polynomial, and rational expressions; quadratic, rational, and radical equations</p> <p>Argument and justification, including inductive and deductive reasoning; proof; discovery, proof, and application of properties of polygons; use of the coordinate plane to investigate and verify properties of geometric figures; properties of circles; measures of spheres</p> <p>Characteristics and transformations of functions and their graphs; sequences as functions; complex numbers; quadratic and piecewise functions; quadratic equations and inequalities, including equations with complex solutions</p> <p>Permutations and combinations; laws of probability; comparison of samples and population using summary statistics; mean absolute deviation; curve fitting</p>				

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Mathematics II: Geometry/Algebra II/Statistics	Right triangle trigonometry, special right triangles, properties of circles, measures of spheres Complex numbers; quadratic equations and inequalities, including equations with complex solutions; piecewise, exponential, and inverse functions; absolute value Populations means, standard deviations, and statistical inferences				
Accelerated Mathematics II: Advanced Algebra/Geometry/Statistics	Right triangle trigonometry, special right triangles, relationships between lines and circles Exponential, logarithmic, and higher degree polynomial functions; inverses of functions Matrices; vertex-edge graphs; conic sections; planes and spheres Use of sample data to make inferences about populations, comparison of data sets using means and standard deviations; probability histograms; experimental versus observational studies; standard deviations and normal distributions				

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Mathematics III: Advanced Algebra / Statistics	Exponential, logarithmic, and higher degree polynomial functions; solving a variety of equations and inequalities by appropriate means; relationships between lines and circles Matrices and vertex-edge graphs; conic sections, planes and spheres Probability histograms; experimental versus observational studies; normal distributions				
Accelerated Mathematics III: Pre-Calculus – Trigonometry/ Statistics	Circular trigonometry; trigonometric functions and their inverses; trigonometric identities and equations; rational functions; investigations of the properties of a variety of functions, sequences and series; vectors Central limit theorem and confidence intervals Polar and parametric equations				
Mathematics IV: Pre-Calculus – Trigonometry/ Statistics	Circular trigonometry; trigonometric functions and their inverses; trigonometric identities and equations; rational functions; investigations of the properties of a variety of functions, sequences and series; vectors Central limit theorem and confidence intervals				

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