Georgia End of Course Test
Mathematics II: Geometry/Algebra II/Statistics
Performance Level Descriptors

EXCEEDS STANDARD

General Performance Level Descriptors

Students performing at this level demonstrate comprehensive understanding and mastery of the procedures and concepts in the content domains of algebra, geometry, and data analysis. They routinely apply their understanding by making connections, reasoning, communicating, using representations, and solving problems. Performance at this level is indicated by the use of complex strategies to analyze and solve mathematical and real-world problems using higher-level cognitive skills.

Specific Performance Level Descriptors

Students at this level are able to do the following:

Algebra

- Analyze and evaluate the characteristics of step, piecewise, exponential, and quadratic functions, as well as inverses of functions.
- Interpret and apply the characteristics of functions with regard to a given context.
- Analyze and evaluate rates of change, both constant and variable, within the basic function families.
- Analyze and evaluate geometric and arithmetic sequences as functions.
- Analyze and solve quadratic equations using a variety of techniques.
- Represent, simplify, and operate with complex numbers.

<u>Geometry</u>

- Understand and apply right triangle relationships, including trigonometric relationships in complex situations.
- Analyze and apply the properties of and relationships among circles and associated lines, segments, and angles.
- Analyze and solve complex problems involving measures related to spheres.

<u>Data Analysis and Probability</u>

- Analyze and evaluate sample data, making inferences about population means and standard deviations and using these inferences to compare data sets.
- Understand and apply the distinctions between sample data and population data.
- Understand and apply algebraic models to quantify the association between two quantitative variables.
- Understand and describe in-depth issues that arise when using data to explore the relationship between two variables.

Georgia End of Course Test
Mathematics II: Geometry/Algebra II/Statistics
Performance Level Descriptors

MEETS STANDARD

General Performance Level Descriptors

Students performing at this level demonstrate understanding of and proficiency with the procedures and concepts in the content domains of algebra, geometry, and data analysis. They generally apply their understanding by making connections, reasoning, communicating, using representations, and solving problems. Performance at this level is indicated by the use of effective strategies to analyze and solve mathematical and real-world problems using some higher-level cognitive skills.

Specific Performance Level Descriptors

Students at this level are able to do the following:

Algebra

- Describe and graph basic functions and their transformations, as well as identify their characteristics.
- Describe and explain the characteristics of functions with simple context.
- Describe and explain rates of change, both constant and variable, within families of functions.
- Recognize and represent geometric and arithmetic sequences as functions with domains that are whole numbers.
- Evaluate, simplify, factor, and operate with expressions or equations, recognizing appropriate equivalent forms.
- Solve quadratic equations expressed in any form.
- Perform basic arithmetic operations with complex numbers.

Geometry

- Describe and apply right triangle relationships, including trigonometric relationships in routine situations.
- Describe and apply the properties of and relationships among circles and associated lines, segments, and angles.
- Solve problems involving measures related to spheres.

<u>Data Analysis and Probability</u>

- Calculate population means and standard deviations and use them to compare data sets.
- Recognize the distinction between sample data and population data.
- Use algebraic models to model the association between two quantitative variables.
- Recognize some of the issues that arise when using data to explore the relationship between two variables.

DOES NOT MEET STANDARD

General Performance Level Descriptors

Students performing at this level demonstrate minimal understanding of and proficiency with the procedures and concepts in the content domains of algebra, geometry, and data analysis. They are occasionally able to make connections, reason, communicate, use representations, and solve problems. Problem solving is based on their ability to memorize some key concepts and perform routine procedures.

Specific Performance Level Descriptors

Students at this level are able to do the following:

<u>Algebra</u>

- Recognize and identify some functions and their transformations, as well as identify their characteristics.
- Identify some of the characteristics of some functions and their inverses.
- Recognize constant and variable rates of change in some functions.
- Recognize and extend some geometric and arithmetic sequences.
- Simplify and perform basic operations with algebraic and numeric expressions.
- Recognize solutions to linear and some quadratic equations.

<u>Geometry</u>

- Identify and use some right triangle trigonometry relationships.
- Recognize and identify some properties of and relationships among circles and lines.
- Compute volume and surface areas of spheres in routine contexts.

<u>Data Analysis and Probability</u>

- Compute population means and standard deviations in routine contexts.
- Recognize that sample data and population data are different.
- Recognize and identify quantitative relationships between two variables that are modeled by linear and nonlinear functions.
- Recognize some issues that arise when using data to explore the relationship between two variables.