

**Georgia End-of-Course Tests
Coordinate Algebra
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 and Functions* (includes *Number and Quantity*), *Algebra Connections to Geometry*, and *Algebra Connections to Statistics and Probability*. They routinely apply their understanding by making connections, reasoning, communicating, using representations, and solving problems. Performance at this level is indicated by the students' use of a wide variety of complex strategies to analyze and solve mathematical and real-world problems, including those where essential information is not explicitly given and must be determined as part of the solution process. Students will exhibit higher-level cognitive skills in their solutions of unique problems.

Specific Performance Level Descriptors

Students at this level are able to do the following:

Algebra and Functions (includes Number and Quantity)

- Reason quantitatively and use units to model and solve problems.
- Analyze and interpret the structure and meaning of parts of expressions.
- Create equations and inequalities to describe numbers or relationships, including representing constraints and rearranging formulas to highlight quantities.
- Solve linear and exponential equations and inequalities in one variable, and explain the process used to solve them.
- Solve systems of equations and explain various methods of finding the solutions.
- Understand and use function notation, including sequences as functions.
- Analyze and interpret functions in different representations and applications.
- Build functions to model relationships and build new functions from existing functions.
- Construct and compare linear and exponential models and use them to solve problems.

Algebra Connections to Geometry

- Construct, explain, and describe transformations of figures in the plane, including the properties of images of figures.
- Create algebraic proofs of simple geometric theorems.
- Analyze and strategize how to use the slope criteria for parallel and perpendicular lines to solve geometric problems, where students need to reason what additional information is needed to solve the problem.
- Analyze and strategize how to solve problems involving distance, including partitioning line segments and finding the perimeter and area of figures, where students need to reason what additional information is needed to solve the problem.

Algebra Connections to Statistics and Probability

- Analyze, represent, and interpret data on a single measurement variable, including shapes of data distributions.
- Analyze, represent, and interpret data for two categorical and quantitative variables, including fitting a function to match the trend of data.
- Analyze, interpret, and solve problems involving linear models, including correlation coefficients and causation.

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MEETS STANDARD

General Performance Level Descriptors

Students performing at this level demonstrate basic understanding of and proficiency with the procedures and concepts in the content domains of *Algebra and Functions (includes Number and Quantity)*, *Algebra Connection to Geometry*, and *Algebra Connections to Statistics and Probability*. They generally apply their understanding by making connections, reasoning, communicating, using representations, and solving problems. Performance at this level is indicated by the students' use of effective strategies to analyze and solve mathematical and real-world problems, but students demonstrate adequate analytical skills when encountering unique problems.

Specific Performance Level Descriptors

Students at this level are able to do the following:

Algebra and Functions (includes Number and Quantity)

- Describe and explain how to use units to solve problems.
- Describe and explain the structure of expressions.
- Use equations and inequalities to describe numbers or relationships, including representing constraints and rearranging formulas to highlight quantities.
- Solve linear and exponential equations, but solving problems with inequalities in one variable may provide more of a challenge.
- Solve systems of equations.
- Use function notation, including sequences as functions.
- Describe and explain the use of functions in different representations and applications.
- Build functions to model relationships and build new functions from existing functions.
- Use linear and exponential models to solve problems.

Algebra Connections to Geometry

- Describe and explain transformations of figures in the plane, including the properties of images of figures.
- Create algebraic proofs of simple geometric theorems.
- Solve problems involving the slope criteria for parallel and perpendicular lines.
- Solve problems involving distances, partitions of line segments, and perimeter and area of figures.

Algebra Connections to Statistics and Probability

- Describe and interpret data on a single measurement variable, including shapes of data distributions.
- Describe and interpret data for two categorical and quantitative variables, and fit a function to match the trend of data.
- Solve problems about linear models, correlation, and causation.

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DOES NOT MEET STANDARD

General Performance Level Descriptors

Students performing at this level demonstrate minimal understanding of and limited skill with the procedures and concepts in the content domains of *Algebra and Functions* (includes *Number and Quantity*), *Algebra Connections to Geometry*, and *Algebra Connections to Statistics and Probability*. 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. Performance at this level is indicated by the ineffective use of strategies to analyze and solve mathematical and real-world problems with limited or inconsistent use of higher-level cognitive skills.

Specific Performance Level Descriptors

Students at this level are able to do the following:

Algebra and Functions (includes Number and Quantity)

- Solve simple problems involving units.
- Recognize properties of the structure of simple expressions.
- Recognize that some relationships can be modeled by equations and inequalities.
- Solve basic linear equations, but often encounter difficulties solving problems with exponents and inequalities.
- Solve simple systems of equations graphically.
- Recognize function notation in functions and sequences.
- Recognize different representations of functions.
- Model simple relationships with functions.
- Recognize situations that can be modeled by linear and exponential functions.

Algebra Connections to Geometry

- Recognize transformations of figures in the plane, but have limited ability to describe how they were created.
- Recognize algebraic properties in proofs of simple geometric theorems.
- Solve simple problems involving parallel and perpendicular lines.
- Solve simple problems involving distance.

Algebra Connections to Statistics and Probability

- Describe basic properties of single-variable data.
- Describe basic properties of two-variable data.
- Recognize linear models, but have limited ability to make connections to correlation and causation.