



Grade 8 FCAT 2.0 Mathematics Achievement Level Descriptions

Grade 8 FCAT 2.0 Mathematics Reporting Category—Expressions, Equations, and Functions

Students performing at the mastery level of this reporting category will be able to analyze and represent linear functions to solve linear equations and systems of linear equations. Students will be able to successfully solve and graph inequalities.

Achievement Level	Achievement Level Descriptions
Level 5	<p><u>Students will consistently be able to</u></p> <ul style="list-style-type: none">• analyze and interpret tables, graphs, and models successfully to represent and solve linear equations and solutions to systems of linear equations;• analyze and apply concepts related to linear equations, including interpreting slope, domain, range and intercepts accurately;• interpret graphical representations of linear or non-linear functions;• solve and graph inequalities in one variable, including inequalities with negative and/or fractional coefficients and compound inequalities; and• solve literal equations with multiple operations for specified variables.
Level 4	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none">• analyze and interpret tables, graphs, and models to represent and solve linear equations, including those with rational number slopes and solutions to systems of linear equations;• interpret concepts related to linear equations, including slope, domain, range, and intercepts, accurately;• interpret graphical representations of linear or non-linear functions;• solve and graph inequalities, including compound inequalities; and• solve literal equations with multiple operations for specified variables.

<p>Level 3</p>	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none"> • use tables, graphs, and models to represent and solve routine linear equations and systems of linear equations; • identify concepts related to linear equations, including domain, range, slope, and intercepts given a table, graph, or model; • solve and graph inequalities in one variable, including solving one-step compound inequalities; and • solve literal equations for specified variables.
<p>Level 2</p>	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none"> • identify the solution to a system of equations when given a graph; • identify the slope, intercepts, or equation of a line from a graph; and • solve and graph one-step linear inequalities.
<p>Level 1</p>	<p>Performance at this level indicates an inadequate level of success with the challenging content of the <i>Next Generation Sunshine State Standards</i> for mathematics.</p>

Grade 8 FCAT 2.0 Mathematics Reporting Category—Geometry and Measurement

Students performing at the mastery level of this reporting category will be able to analyze two- and three-dimensional figures by using distance and angle. Students will be able to successfully compare and convert units of measure.

Achievement Level	Achievement Level Descriptions
Level 5	<p><u>Students will consistently be able to</u></p> <ul style="list-style-type: none">• analyze and apply similarity and/or the Pythagorean theorem to solve problems that include heights and distances;• analyze and determine the measures of angles in problems that require multiple steps to solve; and• compare and convert units of measure, including dimensions of area, volume, and capacity, both within and between measurement systems.
Level 4	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none">• apply similarity and/or the Pythagorean theorem to solve problems that include heights and distances;• analyze and determine the measures of angles; and• compare and convert units of measure both within and between measurement systems.
Level 3	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none">• use similar triangles to solve routine problems;• use the Pythagorean theorem to solve routine height or distance problems;• classify and determine the measures of angles, including angles in polygons and angles created by intersecting lines; and• compare and convert units of measure within a system of measure and linear units between systems.

<p style="text-align: center;">Level 2</p>	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none"> • use similar triangles to solve routine problems where the triangles have the same orientation in space; • use the Pythagorean theorem to solve routine height or distance problems when given the measures of both legs; • determine the measures of angles in triangles and identify the measures of angles that are corresponding or vertical; and • convert units within a system of measure and linear units between systems.
<p style="text-align: center;">Level 1</p>	<p>Performance at this level indicates an inadequate level of success with the challenging content of the <i>Next Generation Sunshine State Standards</i> for mathematics.</p>

Grade 8 FCAT 2.0 Mathematics Reporting Category—Number: Operations, Problems, and Statistics	
Students performing at the mastery level of this reporting category will be able to solve real-world problems using operations on real numbers. Students will be able to successfully analyze and summarize data sets.	
Achievement Level	Achievement Level Descriptions
Level 5	<p>Students will consistently be able to</p> <ul style="list-style-type: none"> • solve problems that include performing operations on numbers written in scientific notation; • represent and compare numbers using scientific notation; • identify and/or apply generalizations about the effects of operations on real numbers; • perform operations on real numbers, including, but not limited to, radical expressions and absolute value; • simplify real number expressions using the law of exponents; • select, organize, and construct the most appropriate display for a given data set, including box-and-whisker plots, scatter plots, and lines of best fit; • generalize statements about data, including data displayed in scatter plots or box-and-whisker plots; • extrapolate data from a given display to solve problems; • analyze how the measures of central tendency and variability of a data set are affected by including or excluding additional data points; and • determine a missing number in a set of data given the values of the measures of central tendency of the data set.

<p style="text-align: center;">Level 4</p>	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none"> • represent and compare numbers using scientific notation; • perform operations on real numbers, including, but not limited to, radical expressions and absolute value; • simplify real number expressions using the law of exponents; • select, organize, or construct the most appropriate display for a given data set, including box-and-whisker plots, scatter plots, and lines of best fit; • generalize statements about data, including data displayed in a scatter plot or box-and-whisker plot; • determine how changes in a given set of data impact the mean, median, or mode of the data set; and • determine a missing number in a set of data given the values of the measures of central tendency of the data set.
<p style="text-align: center;">Level 3</p>	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none"> • represent numbers using scientific notation; • perform operations on real numbers, including, but not limited to, radical expressions and absolute value; • simplify real number expressions using the law of exponents; • identify trend lines in a scatter plot; • identify the measures of central tendency from a data display; and • determine a missing number in a set of data given the values of the measures of central tendency of the data set.

Level 2	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none">• identify the correct exponent when converting a number greater than one in standard form to scientific notation;• perform one-step operations on real numbers, including, but not limited to, radical expressions and absolute value;• identify a positive or a negative trend in a scatter plot; and• identify the mode and range from a data display.
Level 1	<p>Performance at this level indicates an inadequate level of success with the challenging content of the <i>Next Generation Sunshine State Standards</i> for mathematics.</p>