



Grade 7 FCAT 2.0 Mathematics Achievement Level Descriptions

Grade 7 FCAT 2.0 Mathematics Reporting Category—Geometry and Measurement

Students performing at the mastery level of this reporting category will be able to solve problems involving the transformation of figures on a coordinate plane. Students will be able to determine the volume and surface area of three-dimensional figures. Students will also compare and convert units of measure between different measurement systems.

Achievement Level

Achievement Level Descriptions

Level 5

Students will consistently be able to

- solve volume and surface area problems including composite figures;
- find the missing dimensions of a three-dimensional figure given its volume or surface area and some of its dimensions;
- apply the effects of changing dimensions on perimeter, circumference, area, and volume in non-routine problem situations;
- predict the results of multiple transformations;
- identify characteristics of quadrants and plot ordered pairs in all four quadrants of a coordinate plane;
- determine the distance between two points located on the same vertical or horizontal line on a coordinate plane;
- solve problems based on geometric properties of figures on a coordinate plane;
- compare and contrast units of measure; and
- performs comparisons and multiple conversions within and between systems, including derived units, and linear conversions between systems.

<p>Level 4</p>	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none"> • solve volume and surface area problems, including composite figures; • find the missing dimensions of a three-dimensional figure given its volume and some of its dimensions; • determine the effects of changing dimensions on perimeter, circumference, area, and volume; • determine the results of transformations including translations, reflections, rotations, and dilations; • identify characteristics of quadrants and plot ordered pairs in each of the four quadrants of a coordinate plane; • solve problems based on geometric properties of figures on a coordinate plane; and • perform multiple conversions within systems, including derived units, and linear conversions between systems.
<p>Level 3</p>	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none"> • apply formulas to solve routine volume and surface area problems given all the dimensions; • determine the change in area or perimeter given a scale factor; • determine the results of transformations, including translations, reflections, and/or rotations; • identify and plot ordered pairs in all four quadrants of a coordinate plane; and • perform up to two conversions within systems and linear conversions between systems.
<p>Level 2</p>	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none"> • apply a formula to solve routine volume problems given all the dimensions; • determine the change in area or perimeter given a whole-number scale factor; • determine the results of a single transformation including a translation, reflection, or rotation; • identify or plot ordered pairs in all four quadrants of a coordinate plane; and • perform single conversions within systems and linear conversions between systems.
<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 7 FCAT 2.0 Mathematics Reporting Category—Ratios and Proportional Relationships	
Students performing at the mastery level of this reporting category will be able to solve problems using ratios and apply proportional relationships to real-world and mathematical situations.	
Achievement Level	Achievement Level Descriptions
Level 5	<p><u>Students will consistently be able to</u></p> <ul style="list-style-type: none"> • apply proportionality and solve multi-step proportion problems, including scale drawings, similar figures, and constant speed; • determine whether a relationship described in a real-world scenario is proportional; • identify the proportion used to solve a problem given a graphic; • analyze the graph of a line and describe the slope as the rate of change; • explain how a change in the slope of the line affects one of the variables; • analyze a graph, table, or situation and determine if it represents a direct or inverse variation; • calculate and apply a scale factor for a given situation to determine a measurement; and • solve multi-step percent problems involving discounts, simple interests, taxes, tips, and percents of increase and decrease.
Level 4	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none"> • apply proportionality and solve two-step proportion problems, including scale drawings, similar figures, and constant speed; • determine whether a relationship described in a real-world scenario is proportional; • identify the proportion used to solve a problem given a graphic; • analyze the graph of a line and describe the slope as the rate of change; • analyze a graph and determine if it represents a direct or inverse variation; • calculate a scale factor for a given situation to determine a measurement; and • solve one- or two-step percent problems involving discounts, simple interests, taxes, tips, and percents of increase and decrease.

<p>Level 3</p>	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none"> • solve routine proportion problems, including scale drawings, similar figures, and constant speed; • identify the proportion used to solve a problem given a graphic; • identify the slope of a line as the rate of change; • identify a graphic representation of a proportional relationship (direct variation); and • solve routine percent problems involving discounts, simple interests, taxes, and tips.
<p>Level 2</p>	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none"> • solve routine proportion problems, including scale drawings, similar figures using graphics, and constant speed involving only one unit of time; • identify a proportion used to solve a problem given figures with the same orientation in space; • solve one-step percent problems involving discounts, taxes, and tips, using whole-number percents only; and • solve one-step simple interest problems where time is in whole-number years.
<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 7 FCAT 2.0 Mathematics Reporting Category—Number: Base Ten

Students performing at the mastery level of this reporting category will be able to solve real-world problems using operations on all rational numbers and use different strategies to solve linear equations.

Achievement Level	Achievement Level Descriptions
Level 5	<p><u>Students will consistently be able to</u></p> <ul style="list-style-type: none">• use the commutative, associative, identity, inverse, and distributive properties to identify equivalent equations that may include negative coefficients;• use the order of operations to simplify expressions that may include terminating decimals, fractions, and negative integers;• convert terminating decimals to fractions and express rational numbers as terminating or repeating decimals;• solve one- and two-step linear equations using rational coefficients;• use, analyze, and justify the rules for adding, subtracting, multiplying, and dividing rational numbers;• formulate an equation for a situation; and• determine the absolute value of an expression.
Level 4	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none">• use the commutative, associative, identity, inverse, and/or distributive properties to identify equivalent equations that may include negative coefficients, excluding negative one;• use the order of operations to simplify expressions that may include terminating decimals and negative integers;• convert terminating decimals to fractions and express rational numbers as terminating or repeating decimals;• solve one- and two-step linear equations using rational coefficients;• use the rules for adding, subtracting, multiplying, and dividing rational numbers;• analyze representations or patterns to determine the effect of an operation;• formulate an equation having one or two variables for a situation; and• determine the absolute value of an expression.

<p>Level 3</p>	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none"> • use the commutative, associative, identity, or inverse properties to identify equivalent equations; • simplify expressions using the order of operations that may include terminating decimals; • express rational numbers as terminating or repeating decimals; • solve one- and two-step linear equations using integer coefficients; • use the rules for adding, subtracting, multiplying, or dividing rational numbers; • interpret pictorial representations of basic operations with integers using manipulatives and number lines; • formulate an equation having one or two variables for a situation; and • determine the absolute value of a simple expression.
<p>Level 2</p>	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none"> • use the commutative, associative, identity, or inverse properties with positive integers to identify equivalent equations; • use the order of operations to simplify expressions having parentheses and numbers with exponents; • express rational numbers as terminating decimals; • solve one- and two-step linear equations using whole number coefficients; • interpret pictorial representations of basic operations with integers using manipulatives; • formulate a one-variable equation for a situation; and • determine the absolute value of a number.
<p>Level 1</p>	<p>Performance at this level indicates an inadequate level of success with the challenging content of the Next Generation Sunshine State Standards for mathematics.</p>

Grade 7 FCAT 2.0 Mathematics Reporting Category—Statistics and Probability

Students performing at the mastery level of this reporting category will be able to construct and analyze graphs and make appropriate generalizations from reasonable population samples. Students will also be able to determine and use probability to make predictions.

Achievement Level	Achievement Level Descriptions
Level 5	<p><u>Students will consistently be able to</u></p> <ul style="list-style-type: none">• analyze the appropriateness of and make generalizations about a sample population;• evaluate hypotheses and conclusions based on statistical samples;• read and interpret graphic displays;• determine the correct type of graph to use for a set of data;• evaluate measures of central tendencies and the range given a graphic display;• determine the probability and reasonableness of an outcome; and• make predictions based on experimental or theoretical probability of an independent or dependent event.
Level 4	<p><u>Students will usually be able to</u></p> <ul style="list-style-type: none">• analyze the appropriateness of and make generalizations about a sample population;• read and interpret data in a graphic display, including histograms, stem-and-leaf plots, and circle graphs;• determine the correct type of graph to use to display a set of data;• evaluate a measure of central tendency or the range given a stem-and-leaf plot;• determine the probability and reasonableness of an outcome; and• make predictions based on experimental or theoretical probability of an independent event.

<p>Level 3</p>	<p><u>Students will generally be able to</u></p> <ul style="list-style-type: none"> • identify an appropriate sample for a population; • read and interpret data in a graphic display, including histograms, stem-and-leaf plots, and circle graphs; • determine the correct type of graph to use to display a set of data; and • determine the likelihood or probability of an outcome occurring in a simple event.
<p>Level 2</p>	<p><u>Students may be able to demonstrate limited ability to</u></p> <ul style="list-style-type: none"> • identify an appropriate sample for a population; • read and interpret data in a graphic display, limited to stem-and-leaf plots and circle graphs; and • represent a simple probability as a fraction or ratio.
<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>