

**Virginia Standards of Learning Assessment
Grade 7 Mathematics Performance Level Descriptors**

Fail/Below Basic	Fail/Basic	Pass/Proficient	Pass/Advanced
<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 1: Number, Number Sense, Computation, and Estimation</i></p> <ul style="list-style-type: none"> ● identify a number <ul style="list-style-type: none"> ○ written with a negative power of ten ○ in scientific notation, ○ as a perfect square ● compare positive rational numbers expressed in the same format (including numbers written in scientific notation with positive exponents) ● add, subtract, multiply, and divide positive rational 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 1: Number, Number Sense, Computation, and Estimation</i></p> <ul style="list-style-type: none"> ● identify the decimal or fraction equivalent of negative powers of ten ● represent numbers in scientific notation with positive exponents ● order numbers written in scientific notation with positive exponents ● compare and order positive rational numbers ● determine square roots of perfect squares from 100 to 200 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 1: Number, Number Sense, Computation, and Estimation</i></p> <ul style="list-style-type: none"> ● represent negative powers of ten in fraction and decimal form ● convert between numbers written in scientific notation with negative exponents and their equivalence ● compare and order <ul style="list-style-type: none"> ○ numbers written in scientific notation ○ rational numbers including percents 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 1: Number, Number Sense, Computation, and Estimation</i></p> <ul style="list-style-type: none"> ● describe the relationship between perfect squares and square roots ● create, solve, and justify solutions to multi-step practical problems with rational numbers ● use proportional reasoning to solve and justify solutions to multistep contextual problems

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<p>numbers expressed in the same format</p> <ul style="list-style-type: none"> ● identify equivalent ratios ● Determine square roots of perfect squares from 0 to 100 	<ul style="list-style-type: none"> ● solve contextual problems involving whole numbers and decimals ● write a proportion to represent a contextual proportional relationship 	<ul style="list-style-type: none"> ● determine square roots of perfect squares from 200 to 400 ● recognize the relationship between perfect squares and their square roots from 0 to 400 ● estimate and solve multi-step contextual problems involving rational numbers ● use proportional reasoning to solve contextual problems ● find the percent of a number 	

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<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 2: Measurement and Geometry</i></p> <ul style="list-style-type: none"> ● find the volume of a rectangular prism ● identify when a dilation has been applied ● identify corresponding congruent angles of similar quadrilaterals and triangles from marked figures ● identify types of quadrilaterals when given figures ● identify a dilation in context 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 2: Measurement and Geometry</i></p> <ul style="list-style-type: none"> ● determine if a problem represents the application of volume or surface area and identify the correct formula ● identify and find measurements for corresponding parts of similar quadrilaterals and triangles ● write similarity statements for similar quadrilaterals and triangles with the same orientation ● sort types of quadrilaterals when given figures ● identify characteristics of parallelograms, rectangles, rhombi, and trapezoids 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 2: Measurement and Geometry</i></p> <ul style="list-style-type: none"> ● apply formulas, calculate the volume, and surface area, and solve contextual problems of cylinders and rectangular prisms ● determine the surface area and volume of a rectangular prism when one attribute is multiplied by a factor of $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, 2, 3, 4 ● write similarity statements for similar quadrilaterals and triangles with different orientations ● determine missing side lengths and angles: <ul style="list-style-type: none"> ○ of similar quadrilaterals and triangles using proportions 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 2: Measurement and Geometry</i></p> <ul style="list-style-type: none"> ● develop formulas for volume and surface area of cylinders and rectangular prisms and justify solutions to contextual problems ● describe the effect on volume and surface area when one attribute is multiplied by a factor of $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, 2, 3, 4 and justify ● Apply proportional reasoning to justify that 2 quadrilaterals or triangles are similar ● determine missing side lengths and angles of composite figures created by similar quadrilaterals or similar triangles

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	<ul style="list-style-type: none">● identify the image of a figure on a coordinate plane after a dilation	<ul style="list-style-type: none">○ of quadrilaterals using properties of quadrilaterals● sort and classify quadrilaterals based on their properties● sketch the image of a dilation on a coordinate plane	<ul style="list-style-type: none">● Use reasoning to justify the properties of quadrilaterals.● describe a dilation with and without context on or off a coordinate plane

<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 3: Probability, Statistics, Patterns, Functions, and Algebra</i></p> <ul style="list-style-type: none"> ● construct a histogram when given predetermined intervals and data in chronological order ● determine the fraction value for experimental probability ● identify m as the slope in $y = mx$ equations ● evaluate expressions given one whole number replacement value, with operations limited to addition, subtraction, multiplication, and division ● represent an expression with pictorial representations ● identify the first step used to solve a two-step linear equation and a one- or two-step inequality 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 3: Probability, Statistics, Patterns, Functions, and Algebra</i></p> <ul style="list-style-type: none"> ● determine the fraction value for theoretical probability ● construct and identify data in a histogram ● Identify positive, negative, and zero slopes given a graph ● determine the slope given a graphed line or equation ● evaluate expressions with whole numbers <ul style="list-style-type: none"> ○ using order of operations ○ given whole number replacement values ● represent equivalent expressions with pictorial representations ● solve two-step linear equations with and without models solve one-step inequalities with whole numbers with and without models 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 3: Probability, Statistics, Patterns, Functions, and Algebra</i></p> <ul style="list-style-type: none"> ● determine if a contextual problem represents theoretical or experimental probability and find the probability ● explain how sample size and randomness affect collected data ● analyze histograms ● compare data represented in histograms to other graphs ● determine the slope from a table and contextual problem and write the related equation ● graph linear equations in the form $y = mx$ ● compare different representations of the same proportional relationship. ● evaluate expressions with rational numbers <ul style="list-style-type: none"> ○ using order of operations 	<p>A student performing at this level should be able to:</p> <p><i>Reporting Category 3: Probability, Statistics, Patterns, Functions, and Algebra</i></p> <ul style="list-style-type: none"> ● describe and compare the difference between experimental and theoretical probability ● make inferences and draw conclusions when given a histogram ● make connections among multiple representations of a function ● evaluate multi step expressions with three replacement values ● justify the reasonableness of solutions in contextual problems for two-step linear equations and inequalities
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