

Performance Level Descriptors – Grade 7 Mathematics

PLD	Domain	Below Basic	Basic	Proficient	Advanced
Reporting		<p>Below Basic do not yet demonstrate proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in content expectations. The students need substantial academic support to be prepared for the next grade level or course and to be on track for <i>college and career readiness</i>.</p>	<p>Basic demonstrate partial proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in content expectations. The students need additional academic support to ensure success in the next grade level or course and to be on track for <i>college and career readiness</i>.</p>	<p>Proficient demonstrate proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in content expectations, and uses clear and precise language when communicating mathematical understanding. The students are prepared for the next grade level or course and are on track for <i>college and career readiness</i>.</p>	<p>Advanced demonstrate advanced proficiency in the knowledge and skills necessary at this grade level/course of learning, as specified in content expectations. The students are well prepared for the next grade level or course and are well prepared for <i>college and career readiness</i>.</p>
		<p>A student who performs at the Below Basic level demonstrates minimal command of the grade-level expectations.</p>	<p>A student who performs at the Basic level demonstrates partial command of the grade-level expectations.</p>	<p>A student who performs at the Proficient level demonstrates proficiency of the grade-level expectations.</p>	<p>A student who performs at the Advanced level demonstrates advanced proficiency of the grade-level expectations.</p>
Range	Ratios and Proportional Relationships	<p>Uses unit rates to complete a table of values and represents the relationship on a Cartesian coordinate plane</p>	<p>Determines proportional relationships by examination (tables, equations, and graphs); calculates a percentage to solve given problems</p>	<p>Solves word problems involving ratios, rates, percentages and proportional relationships with like or different units; determines the constant of proportionality and develops an equation, table, graph, or diagram to describe a relationship; describes the meaning of a point on the graph of a proportional relationship in context</p>	<p>Analyzes and interprets numeric and symbolic proportional relationships and uses them to solve multistep problems by comparing rates and ratios including complex fractions; communicates the relationship between the unit rate and the graph in a context</p>

	Number Sense and Operations	Calculates values using the four operations on non-negative rational numbers	Calculates values using the four operations on rational numbers; converts a positive or negative fraction to a decimal	Applies properties as strategies to manipulate rational numbers; solves word problems involving rational numbers; represents operations on rational numbers in multiple ways	Interprets and communicates the properties of negative rational numbers with respect to properties of operations on rational numbers; models real-world problems involving rational numbers
Range	Expressions, Equations, and Inequalities	Generates equivalent forms of algebraic expressions involving integers; solves a given single-step equation or inequality	Solves a given two-step equation or inequality with positive rational numbers; converts between equivalent forms of the same number to solve a problem	Uses properties to create equivalent expressions, writes, solves, and graphs multistep rational number word problems with equations and inequalities; assesses the reasonableness of answers using mental computation and estimation strategies	Uses multiple properties of operations to generate equivalent expressions and to solve complex multistep word problems with rational coefficients, uses variables to represent quantities in complex multistep word problems with equations and inequalities; interprets solutions in a context
	Geometry and Measurement	Finds the area of triangles, quadrilaterals, and other polygons composed of triangles and rectangles	Computes lengths from scale drawings; determines if provided constraints will create a unique triangle, more than one triangle, or no triangle; computes between radius, diameter, and circumference; finds area and circumference of a circle	Computes areas from scale drawings and reproduces drawings at a different scale; constructs triangles given constraints; represents two-dimensional cross-sections of three-dimensional figures; models and solves problems involving scale drawings and angle measure (limited to complementary, supplementary, adjacent and vertical angles), area, surface area, circumference and volume; understands relationship between radius, diameter, and circumference	Creates and analyzes geometric figures and compares their general properties; constructs quadrilaterals; analyzes the relationship between circumference and area; solves complex and/or multistep problems involving plane sections, area, surface area and volume of composite polygons and solids

	<p>Data Analysis, Statistics and Probability</p>	<p>Distinguishes between populations and samples; understands probability as a number between 0 and 1; calculates simple probability; understands samples can be used to gain information about a population; distinguishes between theoretical and experimental probabilities</p>	<p>Compares experimental and theoretical probabilities; uses random sampling to draw inferences about a population; understands likelihood on a continuum of 0 to 1</p>	<p>Uses random sampling to draw comparative inferences about two populations, including measures of center, frequency, and variability; explains why samples are used in statistics; develops, uses and evaluates uniform probability models; uses a variety of tools to find probabilities of compound events; predicts outcomes using theoretical probability</p>	<p>Uses multiple samples to draw inferences about a population; draws interpretive comparative inferences about multiple populations; communicates the relationship between experimental and theoretical probabilistic reasoning; interprets the information from a data display; designs simulations to generate frequency data; develops, uses and evaluates multiple probability models</p>
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