

Advanced – Performance Level 4 (Score range: 652 to 920)

Students identify properties of exponents; describe geometric relationships using equations; solve systems of linear equations; apply multiple representations to functions; determine, use measures of variability, central tendency in context; create, use lines of best fit; describe data using graphs, equations; calculate probability of events; apply the Pythagorean theorem; calculate volume; relate changes in dimensions to perimeter, area, volume; use appropriate tools, scale factors, unit conversions to find unknown measurements, use estimation, coordinate grids, right triangle properties to solve problems.

Proficient – Performance Level 3 (Score range: 602 to 651)

Students use estimation to find reasonable solutions; translate numbers from standard notation to scientific notation; convert between functional representations; evaluate formulas, create, interpret graphs or functional relationships; use data displays to represent, make claims about sets of data; determine probability; identify coordinate solutions to geometry problems, visualize transformations of figures; apply knowledge of perimeter relationships; use appropriate tools, scale factor to find unknown measurements, use computational methods, proportional thinking to solve problems involving rational numbers.

Partially Proficient – Performance Level 2 (Score range: 548 to 601)

Students translate written relationships into equations; use graphs to identify maximum and minimum values within a given domain; apply fundamental counting principle to determine possible outcomes; use appropriate techniques to compute with integers.

Unsatisfactory – Performance Level 1 (Score range: 340 to 547)

Students work backwards to solve problems, read, interpret, compare data displays, use appropriate techniques to compute with whole numbers in basic single-step problems.



Advanced	Proficient	Partially Proficient	Unsatisfactory
<p>Standard 1 Students demonstrate exceptional use of number sense and use of numbers by</p> <ul style="list-style-type: none"> Recognizing the properties of exponents <p>Students may also demonstrate exceptional use of number sense and use of numbers by</p> <ul style="list-style-type: none"> Using properties of exponents to express ratios between two numbers written in scientific notation Using the properties of exponents to apply the operation "to the power of" 	<p>Standard 1 Students demonstrate use of number sense and use of numbers by</p> <ul style="list-style-type: none"> Estimating the reasonableness of solutions involving rational numbers Translating numbers from standard notation to scientific notation 	<p>Standard 1 No evidence of this standard at this performance level.</p>	<p>Standard 1 No evidence of this standard at this performance level.</p>



Advanced	Proficient	Partially Proficient	Unsatisfactory
<p>Standard 2 Students demonstrate exceptional use of algebraic methods to explore, model, and describe patterns and functions by</p> <ul style="list-style-type: none"> • Representing functional relationships in multiple ways • Expressing the perimeter of geometric figures algebraically • Determining the solution to simple systems of equations using graphing • Solving problems using algebraic methods • Modeling real-world situations using equations <p>Students may also demonstrate exceptional use of algebraic methods to explore, model, and describe patterns and functions by</p> <ul style="list-style-type: none"> • Modeling real-world situations using patterns and equations • Solving simple systems of equations using algebraic methods • Identifying and interpreting x- and y-intercepts in the context of problems • Solving problems involving comparison of rates • Solving for the independent variable when given the dependent variable 	<p>Standard 2 Students demonstrate use of algebraic methods to explore, model, and describe patterns and functions by</p> <ul style="list-style-type: none"> • Converting from one functional representation to another • Representing functional relationships using an equation or table • Evaluating formulas • Interpreting graphical representations of real-world situations • Graphing functional relationships 	<p>Standard 2 Students demonstrate limited use of algebraic methods to explore, model, and describe patterns and functions by</p> <ul style="list-style-type: none"> • Translating written relationships into equations • Using graphs to identify the maximum and minimum within given domains 	<p>Standard 2 Students demonstrate minimal use of algebraic methods to explore, model, and describe patterns and functions by</p> <ul style="list-style-type: none"> • Working backwards to solve problems



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<p>Standard 3 Students demonstrate exceptional use of data collection and analysis, statistics, and probability by</p> <ul style="list-style-type: none"> • Determining measures of central tendency from graphed data • Determining the effects of additional data on measures of variability and central tendency • Drawing lines of best fit to make predictions about data <p>Students may also demonstrate exceptional use of data collection and analysis, statistics, and probability by</p> <ul style="list-style-type: none"> • Describing how data can be used to support more than one position • Determining quartiles • Determining the probability of dependent and independent events • Determining appropriate measures of central tendency from given data in the context of problems • Using permutations to solve real-world problems • Applying understanding of the relationship among measures of central tendency • Determining equations to represent lines of best fit • Interpreting, interpolating, and extrapolating using lines of best fit in real-world situations • Interpreting measures of variability in problem-solving situations • Interpreting slope in the context of problems 	<p>Standard 3 Students demonstrate use of data collection and analysis, statistics, and probability by</p> <ul style="list-style-type: none"> • Using appropriate data displays to represent and describe sets of data • Determining the probability of identified events using the sample spaces • Describing how data can be used to support claims 	<p>Standard 3 Students demonstrate limited use of data collection and analysis, statistics, and probability by</p> <ul style="list-style-type: none"> • Using counting strategies to determine the possible outcomes of a process 	<p>Standard 3 Students demonstrate minimal use of data collection and analysis, statistics, and probability by</p> <ul style="list-style-type: none"> • Reading, interpreting, and comparing displays of data

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<p>Standard 4 Students demonstrate exceptional use of geometric concepts, properties, and relationships by</p> <ul style="list-style-type: none"> • Demonstrating how changing dimensions and shapes of simple figures affects their perimeters • Calculating the volume of simple geometric solids • Applying the concept of slope to locate points on a coordinate grid • Recognizing the relationship between the areas and sides of simple figures • Determining how a change in the dimensions or shape of a figure affects perimeter • Applying the Pythagorean theorem in real-world situations • Recognizing angle relationships within figures <p>Students may also demonstrate exceptional use of geometric concepts, properties, and relationships by</p> <ul style="list-style-type: none"> • Determining maximum and minimum perimeter values when the dimensions of figures are changed • Representing irrational numbers and their squares geometrically • Explaining the relationship between the areas and sides of simple figures 	<p>Standard 4 Students demonstrate use of geometric concepts, properties, and relationships by</p> <ul style="list-style-type: none"> • Using coordinate geometry to solve problems involving the midpoint of a segment • Using transformation concepts to identify relationships between parts of figures • Applying knowledge of perimeters in problem-solving situations 	<p>Standard 4 No evidence of this standard at this performance level.</p>	<p>Standard 4 No evidence of this standard at this performance level.</p>



Advanced	Proficient	Partially Proficient	Unsatisfactory
<p>Standard 5 Students demonstrate exceptional use of a variety of tools and techniques to measure by</p> <ul style="list-style-type: none"> Modeling rate of change in real-world situations involving different units Using appropriate measurement tools and scale factors to calculate rates of change in multistep problems Explaining methods for finding the area of triangles using the Pythagorean theorem Describing the change in volume of a shape that results from changing one attribute of that shape <p>Students may also demonstrate exceptional use of a variety of tools and techniques to measure by</p> <ul style="list-style-type: none"> Calculating and justifying solutions to geometric problems requiring the use of the Pythagorean theorem Using measurements to indirectly solve problems involving surface area 	<p>Standard 5 Students demonstrate use of a variety of tools and techniques to measure by</p> <ul style="list-style-type: none"> Using appropriate measurement tools and scale factors to find unknown measurements 	<p>Standard 5 No evidence of this standard at this performance level.</p>	<p>Standard 5 No evidence of this standard at this performance level.</p>
<p>Standard 6 Students demonstrate exceptional use of computational techniques in problem-solving situations by</p> <ul style="list-style-type: none"> Converting from one set of units to another Selecting and using operations in problem-solving situations involving whole numbers and percents <p>Students may also demonstrate exceptional use of computational techniques in problem-solving situations by</p> <ul style="list-style-type: none"> Selecting and using operations in multistep problems involving percents and proportional thinking 	<p>Standard 6 Students demonstrate use of computational techniques in problem-solving situations by</p> <ul style="list-style-type: none"> Using proportional thinking in problem-solving situations Computing using rational numbers Selecting and using operations to solve problems involving rational numbers and percents 	<p>Standard 6 Students demonstrate limited use of computational techniques in problem-solving situations by</p> <ul style="list-style-type: none"> Computing with integers 	<p>Standard 6 Students demonstrate minimal use of computational techniques in problem-solving situations by</p> <ul style="list-style-type: none"> Computing with whole numbers in basic single-step problems