Advanced – Performance Level 4 (Score range: 692 to 950)
Students represent polynomials in equivalent forms; solve systems of linear equations; apply multiple representations to functions; determine systematic sampling methods for given situations; determine probability of independent events; describe nonlinear data using graphs, create, use lines of best fit; interpret x-and y-intercepts; recognize angle relationships, relate dimension changes to perimeter, area, volume changes; compare areas using spatial visualization; calculate volume; visualize three-dimensional figures from two-dimensional shapes; use estimate, right triangle properties to solve problems.

Proficient – Performance Level 3 (Score range: 627 to 691)
Students recognize equivalent variable expressions; perform unit conversion involving rates; choose scales, plot coordinate points on graphs, interpret nonlinear graphs; generalize patters using algebraic notation; determine measures of central tendency from graphed data; use coordinate geometry to solve problems; use computational methods, percents, proportional thinking to solve problems, apply Pythagorean theorem; work with expressions containing roots; use estimation strategies to find reasonable solutions.

Partially Proficient – Performance Level 2 (Score range: 562 to 626)
Students apply fundamental counting principle to determine possible outcomes; list sample spaces; represent functional relationships with tables or graphs; identify uniform distributions; visualize transformations of figures; read and interpret graphs; use graphs to support multiple positions, make predications about data.

Unsatisfactory – Performance Level 1 (Score range: 370 to 561)
A 10th grade student performing in the Unsatisfactory Level demonstrates limited understanding of the concepts and ineffective application of the mathematical skills contained in the six Colorado Model Content Standards for mathematics.

Advanced	Proficient	Partially Proficient	Unsatisfactory
Standard 1 Students demonstrate exceptional use of number sense and use of numbers by • Performing operations on polynomials to represent equivalent forms • Using properties of exponents to express ratios between two numbers written in scientific notation • Solving problems and estimating with very large and very small numbers using proportional thinking • Using the properties of exponents to apply the operation "to the power of" • Applying estimation to solve multistep problems Students may also demonstrate exceptional use of number sense and use of numbers by • Using understanding of fractions and large numbers to solve problems in real-world situations • Justifying reasonableness of estimated results • Communicating reasoning used in solving problems	**Standard 1** Students demonstrate use of number sense and use of numbers by • Determining reasonable solutions for problems using very small and very large numbers • Recognizing equivalent variable expressions • Providing reasonable estimates for problems using large numbers • Recognizing properties of exponents	**Standard 1** No evidence of this standard at this performance level	**Standard 1** No evidence of this standard at this performance level

Advanced	Proficient	Partially Proficient	Unsatisfactory
Standard 2 Students demonstrate exceptional use of algebraic methods to explore, model, and describe patterns and functions by • Modeling real-world relationships using multiple representations of equations and inequalities • Describing graphic translations in real-world situations • Solving multivariable equations • Solving simple systems of linear equations • Interpreting the *x*- and *y*-intercepts in the context of real-world situations • Finding equations of quadratic graphs • Evaluating equations involving radicals and substitution • Making predictions using patterns • Determining equations for lines of best fit Students may also demonstrate exceptional use of algebraic methods to explore, model, and describe patterns and functions by • Interpreting lines of best fit in problem-solving situations • Explaining the reasonableness of predictions based on lines of best fit • Graphically modeling and interpreting exponential growth	**Standard 2** Students demonstrate use of algebraic methods to explore, model, and describe patterns and functions by • Translating from written relationships to equations • Reading and interpreting graphs (piecewise and exponential) in real-world situations • Creating scatterplots from given data • Evaluating formulas involving negative integers • Performing unit conversions involving rates • Representing functional relationships with multiple displays • Generalizing patterns using algebraic notation	**Standard 2** Students demonstrate limited use of algebraic methods to explore, model, and describe patterns and functions by • Reading and interpreting graphs of quadratic equations in real-world situations • Representing functional relationships using either tables or graphs	**Standard 2** No evidence of this standard at this performance level

Advanced	Proficient	Partially Proficient	Unsatisfactory
Standard 3 Students demonstrate exceptional use of data collection and analysis, statistics, and probability by • Determining the effects of additional data on measures of variability and central tendency • Using data analysis to draw conclusions about large populations • Applying organized counting principles to determine the total number of outcomes of 2 events and to identify the outcomes that meet given criteria • Determining quartiles from given data • Creating data sets that match given measures of central tendency • Identifying factors in the design of a data collection experiment that could lead to flawed results • Determining the theoretical sample space and probability of identified events with multiple variables Students may also demonstrate exceptional use of data collection and analysis, statistics, and probability by • Determining what additional data points are needed to achieve specified mean values • Communicating outcome tables and probability calculations • Extending counting theory beyond 2 events • Determining possible outcomes and probability of specific results • Interpreting normal distributions and standard deviation in real-world situations	**Standard 3** Students demonstrate use of data collection and analysis, statistics, and probability by • Using counting strategies and narrative descriptions to determine the possible outcomes of a process • Determining measures of central tendency from graphed data	**Standard 3** Students demonstrate limited use of data collection and analysis, statistics, and probability by • Identifying a uniform distribution • Interpreting graphs to support different positions • Using counting strategies and visual displays to determine the possible outcomes of a process • Listing sample spaces • Making predictions about real-world data based on given lines of best fit	**Standard 3** No evidence of this standard at this performance level.

Advanced	Proficient	Partially Proficient	Unsatisfactory
Standard 4 Students demonstrate exceptional use of geometric concepts, properties, and relationships by • Recognizing angle relationships within figures • Applying the Pythagorean theorem in problem-solving situations • Calculating the volume of simple geometric solids • Comparing the areas of polygons by using spatial visualization and ratios • Visualizing three-dimensional figures from two-dimensional diagrams • Applying the concept of similarity in real-world situations Students may also demonstrate exceptional use of geometric concepts, properties, and relationships by • Finding the volume of prisms other than rectangular prisms • Applying area and volume relationships in problem-solving situations • Using similarity to calculate the volume and surface area of triangular prisms	**Standard 4** Students demonstrate use of geometric concepts, properties, and relationships by • Using coordinate geometry to solve problems involving the midpoint of a segment	**Standard 4** Students demonstrate limited use of geometric concepts, properties, and relationships by • Using transformation concepts to identify relationships between parts of figures	**Standard 4** No evidence of this standard at this performance level.

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Advanced	Proficient	Partially Proficient	Unsatisfactory
Standard 5 Students demonstrate exceptional use of a variety of tools and techniques to measure by • Applying perimeter and area relationships to quadrilaterals • Maximizing the area of quadrilaterals • Describing the change in volume of a shape that results from changing one attribute of that shape • Modeling rate of change in real-world situations involving different units • Applying and explaining the use of the Pythagorean theorem in problem-solving situations involving area Students may also demonstrate exceptional use of a variety of tools and techniques to measure by • Applying perimeter and area relationships to maximize the area of quadrilaterals • Solving real-world problems involving special right triangles	**Standard 5** Students demonstrate use of a variety of tools and techniques to measure by • Applying the Pythagorean theorem in problem-solving situations to obtain indirect measurements	**Standard 5** No evidence of this standard at this performance level	**Standard 5** No evidence of this standard at this performance level
Standard 6 Students demonstrate exceptional use of computational techniques in problem-solving situations by • Applying computational methods to problems involving exponents • Using proportions in problem-solving situations involving fractions	**Standard 6** Students demonstrate use of computational techniques in problem-solving situations by • Applying percents and proportional thinking to problem-solving situations • Applying computational methods to problems involving roots	**Standard 6** No evidence of this standard at this performance level	**Standard 6** No evidence of this standard at this performance level