DOES NOT MEET THE STANDARDS

A student at this level of mathematics succeeds at few of the most fundamental mathematics skills of the Minnesota Academic Standards. Some of the skills demonstrated may include:

- Number & Operation: Changes numbers in fractional form to decimal form by dividing; recognizes that short terminating decimals, fractions, and whole numbers are rational; recognizes familiar numbers as rational; recognizes that a negative numbers is less than a positive number; solves one-step problems with integers; uses a set of defined steps to find a missing number in a given proportion
- Algebra: Represents simple context as a graph; relies on key words to determine operations to represent relationships; solves one-step equations in explicit situations following rote procedure, instead of the concept of equality
- Geometry & Measurement: calculates the circumference of a circle when given the diameter; recognizes a translation or a reflection on a coordinate grid
- Data Analysis: Calculates mean, median and range from a string of numbers using rote procedures (numbers must be in increasing order to calculate median); matches a given data set to the graph of the data; determines sample space (i.e., the set of all possible outcomes) in a simple and very familiar context; understands simple probability expressed in fractional form

PARTIALLY MEETS THE STANDARDS

A student at this level of mathematics partially meets the mathematics skills of the Minnesota Academic Standards. Some of the skills demonstrated may include:

- Number & Operation: Changes numbers in fractional form to decimal form and uses to compare; recognizes common repeating decimals and perfect squares under 100 as rational; solves multi-step problems involving familiar rational numbers when all relevant information is present and the question is clearly defined
- Algebra: Matches a proportion to a given problem situation; writes algebraic expressions using the commutative and associative properties; solves equations numerically (by substitution)
- Geometry & Measurement: Uses formulas for area and circumference of a circle and volume of a cylinder when exact values to substitute are given; solves problems with similar figures when a diagram is provided with corresponding parts labeled with "friendly" numbers; uses verbal description to perform a single translation or reflection on a grid
- Data Analysis: Calculates mean, median and range from a string of numbers (knows to order data set to determine median – or does not have to write down the ordered data set); reads circle graphs to solve problems; determines the sample space for an experiment using inefficient procedures; understands simple probability in fractions, decimals, and percents

MEETS THE STANDARDS

A student at this level of mathematics meets the mathematics skills of the Minnesota Academic Standards. Some of the skills demonstrated may include:

- Number & Operation: Recognizes rational numbers in various forms and converts between forms; compares positive and negative rational numbers; solves multi-step problems involving

rational numbers in routine problems/situations including proportions; understands that absolute value is the distance from zero

- Algebra: Understands the concept of proportionality and applies to routine problem solving situations; uses properties of algebra as well as order of operations to generate equivalent algebraic expressions and solve problems; represents and solves equations involving one variable, symbolically
- Geometry & Measurement: Uses formulas to calculate area and circumference of circles and volume and surface area of cylinders; uses proportions and ratios to solve problems involving scale drawings and conversions; uses verbal descriptions to perform translations or reflections on a grid
- Data Analysis: Calculates mean, median and range from various data displays; understands impact of change in data set (increase or decrease); reads circle graphs and histograms to solve problems; calculates probability as a fraction of sample space

EXCEEDS THE STANDARDS

A student at this level of mathematics exceeds the mathematics skills of the Minnesota Academic Standards. Some of the skills demonstrated very consistently may include:

- Number & Operation: Conceptual understanding of rational numbers including justification of why a number is rational; solves non-routine (complex) problems/situations using rational numbers
- Algebra: Distinguishes proportional relationships from other relationships; understands the concept of proportionality and applies it to non-routine problem solving situations; uses the properties as well as order of operations to generate equivalent algebraic expressions and solve non-routine problems; represents and solves equations involving non-routine representations
- Geometry & Measurement: Justifies formulas for surface area and volume; can see relationships between circles and cylinders; solves problems involving scale factor and area ratios (with or without a diagram); uses algebraic rules to describe multiple translations or reflections on a grid
- Data Analysis: Efficiently determines mean, median and range regardless of presentation; understands abstractly how change in data set impacts mean and median (quantity of change without recalculating); interprets circle graphs and histograms to solve problems; uses proportions to calculate probabilities and solve non-routine problems

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