Montana Math

Grade 6

Ratios and Proportional Relationships MT.6.RP

1. **Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.** MT.6.RP.1
2. **Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship.** MT.6.RP.2
3. **Use ratio and rate reasoning to solve proportional problems in context about unit rates, percentages (as a rate per 100), and/or measurement units using tables or equations. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.** MT.6.RP.3

The Number System MT.6.NS

1. **Represent, interpret, and compute quotients of fractions and solve problems in context involving division of fractions by fractions.** MT.6.NS.1
2. **Accurately and efficiently divide multi-digit numbers using the standard algorithm.** MT.6.NS.2
3. **Accurately and efficiently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.** MT.6.NS.3
4. **Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.** MT.6.NS.4
5. **Understand that positive and negative numbers are used together to describe quantities having opposite directions or values and use positive and negative numbers to represent quantities in problems in contexts, explaining the meaning of 0 in each situation.** MT.6.NS.5
6. **Understand a rational number as a point on the number line and extend number line diagrams and coordinate axes by:** MT.6.NS.6
   a. *Understand a rational number as a point on the number line and extend number line diagrams and coordinate axes by* recognizing opposite signs of numbers as indicating locations on opposite sides of 0 on the number line, recognizing that the opposite of the opposite of a number is the number itself, and that 0 is its own opposite. MT.6.NS.6.A

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b *Understand a rational number as a point on the number line and extend number line diagrams and coordinate axes by* understanding signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane and recognizing that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes, and MT.6.NS.6.B

c *Understand a rational number as a point on the number line and extend number line diagrams and coordinate axes by* finding and positioning integers and other rational numbers on a horizontal or vertical number line diagram and finding and positioning pairs of integers and other rational numbers on a coordinate plane. MT.6.NS.6.C

7 **Understand ordering and absolute value of rational numbers by:** MT.6.NS.7

a *Understand ordering and absolute value of rational numbers by* interpreting statements of inequality as statements about the relative position of two numbers on a number line diagram, MT.6.NS.7.A

b *Understand ordering and absolute value of rational numbers by* writing, interpreting, and explaining statements of order for rational numbers in problems in context. MT.6.NS.7.B

c *Understand ordering and absolute value of rational numbers by* understanding the absolute value of a rational number as its distance from 0 on the number line and interpreting absolute value as magnitude for a positive or negative quantity in problems in context. MT.6.NS.7.C

d *Understand ordering and absolute value of rational numbers by* distinguishing comparisons of absolute value from statements about order. MT.6.NS.7.D

8 **Graph points in all four quadrants of the coordinate plane and include the use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.** MT.6.NS.8

Expressions and Equations MT.6.EE

1 **Write and evaluate numerical expressions involving whole-number bases and exponents.** MT.6.EE.1

2 **Write, read, and evaluate expressions with variables by:** MT.6.EE.2

a *Write, read, and evaluate expressions with variables by* writing expressions that record operations with numbers and with variables. MT.6.EE.2.A

b *Write, read, and evaluate expressions with variables by* identifying parts of an expression using mathematical terms (sum, product, difference, quotient, term, factor, coefficient, variable) and writing expressions that represent verbal descriptions of problems in context. MT.6.EE.2.B

c *Write, read, and evaluate expressions with variables by* evaluating expressions at specific values of their variables including expressions that arise from formulas performing arithmetic operations, including those involving whole-number exponents and using the order of operations. MT.6.EE.2.C

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	3	**Apply the properties of operations including the distributive property, to generate equivalent expressions and determine when two expressions are equivalent.** MT.6.EE.3
	4	**Understand how to solve an equation or inequality as a process by using substitution to determine whether a given number in a specified set makes an equation or inequality true.** MT.6.EE.4
	5	**Write expressions when solving problems in context and understand that a variable can represent an unknown number, or any number in a specified set.** MT.6.EE.5
	6	**Solve problems including problems in context by writing and solving equations of the form x + p = q and px = q for cases in which p, q, and x are all nonnegative rational numbers.** MT.6.EE.6
	7	**Write an inequality of the form x > c or x < c to represent a constraint or condition in problems including problems in context; graph and describe solutions of such inequalities on number line diagrams.** MT.6.EE.7
	8	**Use variables to represent two quantities that change in relationship to one another analyze the relationship between the dependent and independent variables using graphs and tables, and write an equation to express one quantity in terms of the other. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.** MT.6.EE.8
Geometry MT.6.G	1	**Find the area of triangles, quadrilaterals, and other polygons by composing them into rectangles or decomposing them into triangles and other shapes. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.** MT.6.G.1
	2	**Find the volume of a right rectangular prism with fractional edge lengths by filling it with unit cubes of the appropriate unit fraction edge lengths and connect and apply the formulas V = l*w*h and V = B*h to find volumes of right rectangular prisms with fractional edge lengths to solve problems in context.** MT.6.G.2
	3	**Draw polygons in the coordinate plane given coordinates for the vertices, find the length of a horizontal or vertical side, and apply these techniques to problems in context.** MT.6.G.3
	4	**Represent three-dimensional figures using nets made up of rectangles and triangles and use the nets to find the surface area of these figures in problems including problems in context. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.** MT.6.G.4
Statistics and Pr	1	**Recognize a statistical question as one that anticipates variability in the data elated to the question and accounts for it in the answers.** MT.6.SP.1

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2 **Understand that a set of data collected to answer a statistical question has a distribution that can be described by its center, spread, and overall shape. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities.** MT.6.SP.2

3 **Recognize that measures of central tendency for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.** MT.6.SP.3

4 **Display numerical data in plots on a number line, including dot plots, histograms, and box plots, and describe any overall pattern and any striking deviations from the overall pattern with reference to the context which the data were gathered.** MT.6.SP.4

5 **Characterize numerical data sets from a sample in relation to their context, such as by:** MT.6.SP.5

- a *Characterize numerical data sets from a sample in relation to their context, such as by:* reporting the number of observations. MT.6.SP.5.A
- b *Characterize numerical data sets from a sample in relation to their context, such as by* describing the nature of the attribute under investigation, including how it was measured and its units of measurement. MT.6.SP.5.B
- c *Characterize numerical data sets from a sample in relation to their context, such as by* finding quantitative measures of central tendency (mode, median, and/or mean) and variability (interquartile range and/or mean absolute deviation), for numerical data sets and relating the choice of measures of central tendency and variability to the shape of the data distribution and the context in which the data were gathered. MT.6.SP.5.C