Georgia Tutorials are designed specifically for the Georgia Standards of Excellence and the Georgia Performance Standards to prepare students for the Georgia Milestones.

Math Tutorials offer targeted instruction, practice and review designed to develop computational fluency, deepen conceptual understanding, and apply mathematical practices. They automatically identify and address learning gaps down to elementary-level content, using adaptive remediation to bring students to grade-level no matter where they start. Students engage with the content in an interactive, feedback-rich environment as they progress through standards-aligned modules. By constantly honing the ability to apply their knowledge in abstract and real world scenarios, students build the depth of knowledge and higher order skills required to demonstrate their mastery when put to the test.

In each module, the Learn It and Try It make complex ideas accessible to students through focused content, modeled logic and process, multi-modal representations, and personalized feedback as students reason through increasingly challenging problems. The Review It offers a high impact summary of key concepts and relates those concepts to students' lives. The Test It assesses students' mastery of the module's concepts, providing granular performance data to students and teachers after each attempt. To help students focus on the content most relevant to them, unit-level pretests and posttests can quickly identify where students are strong and where they're still learning.

Unit 1: Basics of Equations

- **INDEPENDENT AND DEPENDENT VARIABLES**
  - 7.PAR.4.8: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
- **MULTIPLE REPRESENTATIONS: TABLES, GRAPHS, AND EQUATIONS**
  - 7.PAR.4.8: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

Unit 2: Rates and Representing Proportions

- **UNIT RATES**
  - 7.PAR.4.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units presented in realistic problems.
- **MULTIPLE REPRESENTATIONS OF PROPORTIONS**
  - 7.PAR.4.8: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

Unit 3: Proportional Reasoning and Slope

- **USING PROPORTIONS TO SOLVE PROBLEMS**

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- 7.PAR.4.9: Use proportional relationships to solve multi-step ratio and percent problems presented in applicable situations.
- 7.PAR.4.4: Identify, represent, and use proportional relationships.

- **ANALYZING PROPORTIONAL RELATIONSHIPS**
  - 7.PAR.4.2: Determine the unit rate (constant of proportionality) in tables, graphs (1,), equations, diagrams, and verbal descriptions of proportional relationships to solve realistic problems.
- **IDENTIFYING PROPORTIONAL RELATIONSHIPS**
  - 7.PAR.4.3: Determine whether two quantities presented in authentic problems are in a proportional relationship.
  - 7.PAR.4.8: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
  - 7.PAR.4.5: Use context to explain what a point (,) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1,) where is the unit rate.
  - 7.PAR.4.4: Identify, represent, and use proportional relationships.
- **SLOPE**
  - 7.PAR.4.8: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
  - 7.PAR.4.7: Use similar triangles to explain why the slope, , is the same between any two distinct points on a nonvertical line in the coordinate plane.

Unit 4: Addition and Subtraction of Rational Numbers

- **ADDING RATIONAL NUMBERS**
  - 7.NR.1.1: Show that a number and its opposite have a sum of 0 (are additive inverses). Describe situations in which opposite quantities combine to make 0.
  - 7.NR.1.2: Show and explain + as the number located a distance from , in the positive or negative direction, depending on whether is positive or negative. Interpret sums of rational numbers by describing applicable situations.
  - 7.NR.1.2: Show and explain + as the number located a distance from , in the positive or negative direction, depending on whether is positive or negative. Interpret sums of rational numbers by describing applicable situations.
  - 7.NR.1.3: Represent addition and subtraction with rational numbers on a horizontal or a vertical number line diagram to solve authentic problems.
- **SUBTRACTING RATIONAL NUMBERS**
  - 7.NR.1.1: Show that a number and its opposite have a sum of 0 (are additive inverses). Describe situations in which opposite quantities combine to make 0.
  - 7.NR.1.4: Show and explain subtraction of rational numbers as adding the additive inverse, = + (). Show that the distance between two rational numbers on the number line is the absolute value of

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their difference and apply this principle in contextual situations.

- 7.NR.1.4: Show and explain subtraction of rational numbers as adding the additive inverse, = + (). Show that the distance between two rational numbers on the number line is the absolute value of their difference and apply this principle in contextual situations.
- 7.NR.1.3: Represent addition and subtraction with rational numbers on a horizontal or a vertical number line diagram to solve authentic problems.

- **USING PROPERTIES TO ADD AND SUBTRACT RATIONAL NUMBERS**
  - 7.NR.1.5: Apply properties of operations, including part-whole reasoning, as strategies to add and subtract rational numbers.

Unit 5: Multiplication and Division of Rational Numbers

- **MULTIPLYING RATIONAL NUMBERS**
  - 7.NR.1.8: Represent the multiplication and division of integers using a variety of strategies and interpret products and quotients of rational numbers by describing them based on the relevant situation.
  - 7.NR.1.6: Make sense of multiplication of rational numbers using realistic applications.
- **DIVIDING RATIONAL NUMBERS**
  - 7.NR.1.7: Show and explain that integers can be divided, assuming the divisor is not zero, and every quotient of integers is a rational number.
  - 7.NR.1.8: Represent the multiplication and division of integers using a variety of strategies and interpret products and quotients of rational numbers by describing them based on the relevant situation.
- **USING PROPERTIES TO MULTIPLY AND DIVIDE RATIONAL NUMBERS**
  - 7.NR.1.9: Apply properties of operations as strategies to solve multiplication and division problems involving rational numbers represented in an applicable scenario.

Unit 6: Working with Rational Numbers

- **EXPRESSING RATIONAL NUMBERS IN DECIMAL FORM**
  - 7.NR.1.10: Convert rational numbers between forms to include fractions, decimal numbers and percentages, using understanding of the part divided by the whole. Know that the decimal form of a rational number terminates in 0s or eventually repeats.
- **USING OPERATIONS ON RATIONAL NUMBERS TO SOLVE PROBLEMS**
  - 7.NR.1.11: Solve multi-step, contextual problems involving rational numbers, converting between forms as appropriate, and assessing the reasonableness of answers using mental computation and estimation strategies.

Unit 7: Algebraic Expressions

- **SIMPLIFYING AND REWRITING ALGEBRAIC EXPRESSIONS**

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- 7.PAR.2.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
- 7.PAR.2.2: Rewrite an expression in different forms from a contextual problem to clarify the problem and show how the quantities in it are related.

- **SOLVING MULTI-STEP PROBLEMS WITH RATIONAL NUMBERS**
  - 7.NR.1.11: Solve multi-step, contextual problems involving rational numbers, converting between forms as appropriate, and assessing the reasonableness of answers using mental computation and estimation strategies.

Unit 8: Equations and Inequalities

- **SOLVING TWO-STEP EQUATIONS**
  - 7.PAR.3.1: Construct algebraic equations to solve practical problems leading to equations of the form + = and (+) = , where , , and are specific rational numbers. Interpret the solution based on the situation.
- **SOLVING LINEAR INEQUALITIES**
  - 7.PAR.3.2: Construct algebraic inequalities to solve problems, leading to inequalities of the form , , , or , where , , and are specific rational numbers. Graph and interpret the solution based on the realistic situation that the inequalities represent.

Unit 9: Drawing, Constructing, and Exploring Geometric Figures

- **SCALE DRAWINGS**
  - 7.PAR.4.6: Solve everyday problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
- **GEOMETRIC DRAWINGS**
  - 7.GSR.5.2: Measure angles in whole number degrees using a protractor.
- **CROSS-SECTIONS OF GEOMETRIC SOLIDS**
  - 7.GSR.5.7: Describe the two-dimensional figures (cross sections) that result from slicing three-dimensional figures, as in the plane sections of right rectangular prisms, right rectangular pyramids, cones, cylinders, and spheres.

Unit 10: Geometry in Two and Three Dimensions

- **CIRCLES**
  - 7.GSR.5.5: Given the formula for the area and circumference of a circle, solve problems that exist in everyday life.
  - 7.GSR.5.4: Explore and describe the relationship between pi, radius, diameter, circumference, and area of a circle to derive the formulas for the circumference and area of a circle.
- **ANGLE RELATIONSHIPS**

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- 7.GSR.5.3: Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve equations for an unknown angle in a figure.

- **AREA, VOLUME, AND SURFACE AREA**
  - 7.GSR.5.8: Explore volume as a measurable attribute of cylinders and right prisms. Find the volume of these geometric figures using concrete problems.
  - 7.GSR.5.6: Solve realistic problems involving surface area of right prisms and cylinders.

Unit 11: Statistics and Sampling

- **POPULATIONS AND SAMPLES**
  - 7.PAR.4.11: Analyze sampling methods and conclude that random sampling produces and supports valid inferences.
  - 7.PAR.4.10: Predict characteristics of a population by examining the characteristics of a representative sample. Recognize the potential limitations and scope of the sample to the population.
  - 7.PAR.4.12: Use data from repeated random samples to evaluate how much a sample mean is expected to vary from a population mean. Simulate multiple samples of the same size.
- **USING STATISTICAL MEASURES TO COMPARE DATA SETS**
  - 7.PAR.4.12: Use data from repeated random samples to evaluate how much a sample mean is expected to vary from a population mean. Simulate multiple samples of the same size.

Unit 12: Probability

- **PROBABILITY**
  - 7.PR.6.1: Represent the probability of a chance event as a number between 0 and 1 that expresses the likelihood of the event occurring. Describe that a probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
  - 7.PR.6.3: Develop a probability model and use it to find probabilities of simple events. Compare experimental and theoretical probabilities of events. If the probabilities are not close, explain possible sources of the discrepancy.
  - 7.PR.6.2: Approximate the probability of a chance event by collecting data on an event and observing its long-run relative frequency will approach the theoretical probability.
- **CALCULATING PROBABILITY**
  - 7.PR.6.3: Develop a probability model and use it to find probabilities of simple events. Compare experimental and theoretical probabilities of events. If the probabilities are not close, explain possible sources of the discrepancy.
  - 7.PR.6.4: Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events.
  - 7.PR.6.1: Represent the probability of a chance event as a number between 0 and 1 that expresses the likelihood of the event occurring. Describe that a probability near 0 indicates an unlikely event, a

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probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

- 7.PR.6.5: Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.

- **SIMULATIONS**
  - 7.PAR.4.12: Use data from repeated random samples to evaluate how much a sample mean is expected to vary from a population mean. Simulate multiple samples of the same size.
  - 7.PR.6.4: Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events.
  - 7.PR.6.5: Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.

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