Texas Tutorials are designed specifically for the Texas Essential Knowledge and Skills (TEKS) to prepare students for the State of Texas Assessment of Academic Readiness (STAAR)® end-of-course assessments.

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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.

1. RATIOS AND RATES

- **RATIOS**
  - **4.C** *give examples of ratios as multiplicative comparisons of two quantities describing the same attribute;*
  - **4.E** *represent ratios and percents with concrete models, fractions, and decimals;*
  - **5.A** *represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;*
  - **11** *The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. The student is expected to graph points in all four quadrants using ordered pairs of rational numbers.*
  - **4.B** *apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;*

- **RATES AND UNIT RATES**
  - **4.D** *give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients;*
  - **5.A** *represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;*
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **1.B** *use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;*
  - **1.C** *select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;*
  - **4.B** *apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;*

- **REPRESENTING PROPORTIONAL RELATIONSHIPS**
  - **5.A** *represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;*
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*

- **1.B** *use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;*

2. USING RATIONAL NUMBERS

- **SOLVING PERCENT PROBLEMS**
  - **1.D** *communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;*
  - **4.E** *represent ratios and percents with concrete models, fractions, and decimals;*
  - **4.F** *represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers;*
  - **5.B** *solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models; and*
  - **12.D** *summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution.*
  - **5.C** *use equivalent fractions, decimals, and percents to show equal parts of the same whole.*
  - **1.B** *use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;*
  - **1.C** *select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;*
  - **4.G** *generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money; and*

- **UNIT CONVERSIONS**
  - **3.B** *determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one;*
  - **4.H** *convert units within a measurement system, including the use of proportions and unit rates.*
  - **4.B** *apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;*
  - **5.A** *represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;*

3. SIGNED NUMBERS

- **SIGNED NUMBERS**
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **2.B** *identify a number, its opposite, and its absolute value;*
  - **1.D** *communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;*
  - **2.C** *locate, compare, and order integers and rational numbers using a number line;*

- **INEQUALITIES AND COMPARISON**
  - **2.C** *locate, compare, and order integers and rational numbers using a number line;*
  - **1.E** *create and use representations to organize, record, and communicate mathematical ideas;*
  - **2.D** *order a set of rational numbers arising from mathematical and real-world contexts; and*

4. ABSOLUTE VALUE AND THE COORDINATE PLANE

- **ABSOLUTE VALUE**
  - **1.D** *communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;*
  - **2.B** *identify a number, its opposite, and its absolute value;*
  - **2.C** *locate, compare, and order integers and rational numbers using a number line;*

- **PLOTTING POINTS IN THE COORDINATE PLANE**
  - **2.C** *locate, compare, and order integers and rational numbers using a number line;*
  - **11** *The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. The student is expected to graph points in all four quadrants using ordered pairs of rational numbers.*

5. EXPRESSIONS

- **EQUIVALENT EXPRESSIONS**
  - **7.A** *generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization;*
  - **7.C** *determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations; and*
  - **7.D** *generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.*

- **EVALUATING EXPRESSIONS**
  - **7.A** *generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization;*

6. BASICS OF EQUATIONS

- **INDEPENDENT AND DEPENDENT VARIABLES**
  - **6.A** *identify independent and dependent quantities from tables and graphs;*
  - **6.B** *write an equation that represents the relationship between independent and dependent quantities from a table; and*
  - **6.C** *represent a given situation using verbal descriptions, tables, graphs, and equations in the form* $y = kx$ *or* $y = x + b$.
  - **1.D** *communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;*

- **MULTIPLE REPRESENTATIONS: TABLES, GRAPHS, AND EQUATIONS**
  - **6.C** *represent a given situation using verbal descriptions, tables, graphs, and equations in the form* $y = kx$ *or* $y = x + b$.
  - **1.D** *communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;*
  - **1.E** *create and use representations to organize, record, and communicate mathematical ideas;*
  - **1.G** *display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.*
  - **6.B** *write an equation that represents the relationship between independent and dependent quantities from a table; and*
  - **6.A** *identify independent and dependent quantities from tables and graphs;*

7. SOLVING EQUATIONS AND INEQUALITIES 1

- **SOLUTIONS OF EQUATIONS AND INEQUALITIES**
  - **7.B** *distinguish between expressions and equations verbally, numerically, and algebraically;*
  - **10.B** *determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.*
  - **10.A** *model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and*

- **SOLVING ADDITION EQUATIONS**
  - **10.A** *model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and*
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **1.B** *use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;*
  - **6.C** *represent a given situation using verbal descriptions, tables, graphs, and equations in the form* $y = kx$ *or* $y = x + b$.
  - **9.A** *write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;*

- **10.B** *determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.*

- **SOLVING MULTIPLICATION EQUATIONS**
  - **10.A** *model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and*
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **1.B** *use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;*
  - **6.C** *represent a given situation using verbal descriptions, tables, graphs, and equations in the form* $y = kx$ *or* $y = x + b$.
  - **9.A** *write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;*
  - **10.B** *determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.*

8. SOLVING EQUATIONS AND INEQUALITIES 2

- **SOLVING INEQUALITIES**
  - **10.A** *model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and*
  - **10.B** *determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.*
  - **9.A** *write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;*
  - **9.C** *write corresponding real-world problems given one-variable, one-step equations or inequalities.*

- **FORMULATING AND SOLVING INEQUALITIES FROM WORD PROBLEMS**
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **1.B** *use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;*
  - **9.A** *write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;*
  - **10.A** *model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and*

9. ADDING AND SUBTRACTING RATIONAL NUMBERS

- **ADDING RATIONAL NUMBERS**
  - **2.B** *identify a number, its opposite, and its absolute value;*
  - **3.D** *add, subtract, multiply, and divide integers fluently; and*
  - **3.C** *represent integer operations with concrete models and connect the actions with the models to standardized algorithms;*

- **SUBTRACTING RATIONAL NUMBERS**
  - **7.D** *generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.*
  - **3.C** *represent integer operations with concrete models and connect the actions with the models to standardized algorithms;*
  - **3.D** *add, subtract, multiply, and divide integers fluently; and*

- **USING PROPERTIES TO ADD AND SUBTRACT RATIONAL NUMBERS**
  - **3.C** *represent integer operations with concrete models and connect the actions with the models to standardized algorithms;*

10. MULTIPLYING AND DIVIDING RATIONAL NUMBERS

- **MULTIPLYING RATIONAL NUMBERS**
  - **3.C** *represent integer operations with concrete models and connect the actions with the models to standardized algorithms;*
  - **3.D** *add, subtract, multiply, and divide integers fluently; and*
  - **3.E** *multiply and divide positive rational numbers fluently.*

- **DIVIDING RATIONAL NUMBERS**
  - **3.C** *represent integer operations with concrete models and connect the actions with the models to standardized algorithms;*
  - **3.D** *add, subtract, multiply, and divide integers fluently; and*
  - **3.A** *recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;*
  - **3.E** *multiply and divide positive rational numbers fluently.*

- **USING PROPERTIES TO MULTIPLY AND DIVIDE RATIONAL NUMBERS**
  - **3.D** *add, subtract, multiply, and divide integers fluently; and*
  - **3.E** *multiply and divide positive rational numbers fluently.*
  - **3.A** *recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;*
  - **3.C** *represent integer operations with concrete models and connect the actions with the models to standardized algorithms;*

11. OPERATIONS WITH FRACTIONS AND DECIMALS

- **DIVIDING FRACTIONS**
  - **2.E** *extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$.*
  - **3.A** *recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;*
  - **3.E** *multiply and divide positive rational numbers fluently.*

- **SOLVING PROBLEMS BY DIVIDING FRACTIONS**
  - **3.E** *multiply and divide positive rational numbers fluently.*

- **DECIMAL OPERATIONS**
  - **3.A** *recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;*
  - **3.E** *multiply and divide positive rational numbers fluently.*
  - **8.D** *determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.*

12. GEOMETRY

- **GEOMETRIC DRAWINGS**
  - **8.A** *extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle;*

- **ANGLE RELATIONSHIPS IN TRIANGLES**
  - **8.A** *extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle;*

13. AREA AND VOLUME

- **AREA**
  - **1.E** *create and use representations to organize, record, and communicate mathematical ideas;*
  - **8.B** *model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes;*
  - **8.D** *determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.*
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **1.B** *use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;*
  - **3.A** *recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;*

- **3.B** *determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one;*
- **8.C** *write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers; and*

- **VOLUME**
  - **8.C** *write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers; and*
  - **8.D** *determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.*

14. INTRODUCTION TO STATISTICS

- **STATISTICAL QUESTIONS AND DATA DISTRIBUTIONS**
  - **1.F** *analyze mathematical relationships to connect and communicate mathematical ideas; and*
  - **12.B** *use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;*
  - **12.C** *summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; and*
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **13.B** *distinguish between situations that yield data with and without variability.*

- **MEASURES OF CENTER AND VARIABILITY**
  - **12.C** *summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; and*

15. DATA DISPLAYS

- **BOX PLOTS**
  - **12.A** *represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots;*
  - **12.C** *summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; and*
  - **13.A** *interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots; and*
  - **12.B** *use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;*
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **1.F** *analyze mathematical relationships to connect and communicate mathematical ideas; and*

- **DOT PLOTS AND HISTOGRAMS**
  - **12.A** *represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots;*
  - **12.C** *summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; and*
  - **13.A** *interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots; and*
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **1.F** *analyze mathematical relationships to connect and communicate mathematical ideas; and*

16. SUMMARIZING DATA

- **SUMMARIZING DATA USING MEASURES OF CENTER AND VARIABILITY**
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **1.F** *analyze mathematical relationships to connect and communicate mathematical ideas; and*

- **12.B** *use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;*
- **12.C** *summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; and*

- **FREQUENCY TABLES**
  - **1.A** *apply mathematics to problems arising in everyday life, society, and the workplace;*
  - **1.F** *analyze mathematical relationships to connect and communicate mathematical ideas; and*
  - **12.D** *summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution.*