

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.

### Unit 1: Rate, Ratio, and Proportion

- **UNIT RATES**

- 4.B: The student applies mathematical process standards to represent and solve problems involving proportional relationships. calculate unit rates from rates in mathematical and real-world problems;
- 4.D: The student applies mathematical process standards to represent and solve problems involving proportional relationships. solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems; and
- 4.E: The student applies mathematical process standards to represent and solve problems involving proportional relationships. convert between measurement systems, including the use of proportions and the use of unit rates.

- **IDENTIFYING PROPORTIONAL RELATIONSHIPS**

- 4.A: The student applies mathematical process standards to represent and solve problems involving proportional relationships. represent constant rates of change in mathematical and real-world

problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including = ;

- 1.B: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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;

- **USING PROPORTIONS TO SOLVE PROBLEMS**

- 4.D: The student applies mathematical process standards to represent and solve problems involving proportional relationships. solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems; and

## Unit 2: Proportional Reasoning

- **UNIT CONVERSIONS**

- 4.E: The student applies mathematical process standards to represent and solve problems involving proportional relationships. convert between measurement systems, including the use of proportions and the use of unit rates.

- **ANALYZING PROPORTIONAL RELATIONSHIPS**

- 4.B: The student applies mathematical process standards to represent and solve problems involving proportional relationships. calculate unit rates from rates in mathematical and real-world problems;
- 4.C: The student applies mathematical process standards to represent and solve problems involving proportional relationships. determine the constant of proportionality ( $= /$ ) within mathematical and real-world problems;
- 4.C: The student applies mathematical process standards to represent and solve problems involving proportional relationships. determine the constant of proportionality ( $= /$ ) within mathematical and real-world problems;
- 4.C: The student applies mathematical process standards to represent and solve problems involving proportional relationships. determine the constant of proportionality ( $= /$ ) within mathematical and real-world problems;
- 4.D: The student applies mathematical process standards to represent and solve problems involving proportional relationships. solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems; and

- **REPRESENTING PROPORTIONAL RELATIONSHIPS**

- 1.F: The student uses mathematical processes to acquire and demonstrate mathematical understanding. analyze mathematical relationships to connect and communicate mathematical ideas; and
- 4.C: The student applies mathematical process standards to represent and solve problems involving proportional relationships. determine the constant of proportionality ( $= /$ ) within mathematical and real-world problems;

- 4.A: The student applies mathematical process standards to represent and solve problems involving proportional relationships. represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including = ;

### Unit 3: Addition and Subtraction of Rational Numbers

#### • ADDING RATIONAL NUMBERS

- 3.A: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. add, subtract, multiply, and divide rational numbers fluently; and
- 3.B: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
- 1.A: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;

#### • SUBTRACTING RATIONAL NUMBERS

- 3.A: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. add, subtract, multiply, and divide rational numbers fluently; and
- 3.B: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
- 1.A: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;

### Unit 4: Multiplication and Division of Rational Numbers

#### • MULTIPLYING RATIONAL NUMBERS

- 3.A: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. add, subtract, multiply, and divide rational numbers fluently; and
- 3.B: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
- 1.A: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;

#### • DIVIDING RATIONAL NUMBERS

- 1.B: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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.A: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;
- 3.A: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. add, subtract, multiply, and divide rational numbers fluently; and
- 3.B: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
- **USING OPERATIONS ON RATIONAL NUMBERS TO SOLVE PROBLEMS**
  - 3.A: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. add, subtract, multiply, and divide rational numbers fluently; and
  - 3.B: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
  - 1.A: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;
  - 1.B: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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;

## Unit 5: Operations with Fractions and Decimals

- **DIVIDING FRACTIONS**
  - 3.A: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. add, subtract, multiply, and divide rational numbers fluently; and
- **SOLVING PROBLEMS BY DIVIDING FRACTIONS**
  - 3.B: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
  - 3.A: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. add, subtract, multiply, and divide rational numbers fluently; and
- **DECIMAL OPERATIONS**
  - 3.A: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. add, subtract, multiply, and divide rational numbers

fluently; and

- 3.B: The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions. apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
- 9.A: The student applies mathematical process standards to solve geometric problems. solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids;

## Unit 6: Equations and Inequalities

### • SOLUTIONS OF EQUATIONS AND INEQUALITIES

- 11.B: The student applies mathematical process standards to solve one-variable equations and inequalities. determine if the given value(s) make(s) one-variable, two-step equations and inequalities true; and

### • SOLVING TWO-STEP EQUATIONS

- 11.A: The student applies mathematical process standards to solve one-variable equations and inequalities. model and solve one-variable, two-step equations and inequalities;
- 1.A: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;
- 1.B: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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.E: The student uses mathematical processes to acquire and demonstrate mathematical understanding. create and use representations to organize, record, and communicate mathematical ideas;
- 7: The student applies mathematical process standards to represent linear relationships using multiple representations. The student is expected to represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form  $y = mx + b$ .
- 10.A: The student applies mathematical process standards to use one-variable equations and inequalities to represent situations. write one-variable, two-step equations and inequalities to represent constraints or conditions within problems;
- 10.B: The student applies mathematical process standards to use one-variable equations and inequalities to represent situations. represent solutions for one-variable, two-step equations and inequalities on number lines; and

### • SOLVING LINEAR INEQUALITIES

- 10.B: The student applies mathematical process standards to use one-variable equations and inequalities to represent situations. represent solutions for one-variable, two-step equations and inequalities on number lines; and

- 11.A: The student applies mathematical process standards to solve one-variable equations and inequalities. model and solve one-variable, two-step equations and inequalities;
- 10.A: The student applies mathematical process standards to use one-variable equations and inequalities to represent situations. write one-variable, two-step equations and inequalities to represent constraints or conditions within problems;
- 1.A: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;
- 1.B: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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.E: The student uses mathematical processes to acquire and demonstrate mathematical understanding. create and use representations to organize, record, and communicate mathematical ideas;
- 11.B: The student applies mathematical process standards to solve one-variable equations and inequalities. determine if the given value(s) make(s) one-variable, two-step equations and inequalities true; and

## Unit 7: Functions

- **SLOPE-INTERCEPT FORM**

- 7: The student applies mathematical process standards to represent linear relationships using multiple representations. The student is expected to represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form  $y = mx + b$ .
- 1.A: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;
- 1.B: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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.E: The student uses mathematical processes to acquire and demonstrate mathematical understanding. create and use representations to organize, record, and communicate mathematical ideas;
- 4.A: The student applies mathematical process standards to represent and solve problems involving proportional relationships. represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including  $y = kx$ ;

- **WRITING LINEAR FUNCTIONS**

- 7: The student applies mathematical process standards to represent linear relationships using multiple representations. The student is expected to represent linear relationships using verbal

descriptions, tables, graphs, and equations that simplify to the form  $y = mx + b$ .

- 1.D: The student uses mathematical processes to acquire and demonstrate mathematical understanding. communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- 1.E: The student uses mathematical processes to acquire and demonstrate mathematical understanding. create and use representations to organize, record, and communicate mathematical ideas;
- 4.A: The student applies mathematical process standards to represent and solve problems involving proportional relationships. represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including  $y = mx + b$ ;
- 1.A: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;
- 1.B: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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;
- 4.A: The student applies mathematical process standards to represent and solve problems involving proportional relationships. represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including  $y = mx + b$ ;

## Unit 8: Similarity and Scale Drawings

### • SIMILARITY AND DILATIONS

- 1.D: The student uses mathematical processes to acquire and demonstrate mathematical understanding. communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- 5.A: The student applies mathematical process standards to use geometry to describe or solve problems involving proportional relationships. generalize the critical attributes of similarity, including ratios within and between similar shapes;
- 1.C: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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;
- 5.C: The student applies mathematical process standards to use geometry to describe or solve problems involving proportional relationships. solve mathematical and real-world problems involving similar shape and scale drawings.

### • SCALE DRAWINGS

- 5.C: The student applies mathematical process standards to use geometry to describe or solve problems involving proportional relationships. solve mathematical and real-world problems involving similar shape and scale drawings.

## Unit 9: Angle Relationships

### • ANGLE RELATIONSHIPS IN TRIANGLES

- 1.F: The student uses mathematical processes to acquire and demonstrate mathematical understanding. analyze mathematical relationships to connect and communicate mathematical ideas; and
- 11.C: The student applies mathematical process standards to solve one-variable equations and inequalities. write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships.

### • PARALLEL LINES AND ANGLE RELATIONSHIPS

- 1.F: The student uses mathematical processes to acquire and demonstrate mathematical understanding. analyze mathematical relationships to connect and communicate mathematical ideas; and
- 11.C: The student applies mathematical process standards to solve one-variable equations and inequalities. write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships.

## Unit 10: Geometry in Two and Three Dimensions

### • CIRCLES

- 9.B: The student applies mathematical process standards to solve geometric problems. determine the circumference and area of circles;
- 5.B: The student applies mathematical process standards to use geometry to describe or solve problems involving proportional relationships. describe as the ratio of the circumference of a circle to its diameter; and
- 8.C: The student applies mathematical process standards to develop geometric relationships with volume. use models to determine the approximate formulas for the circumference and area of a circle and connect the models to the actual formulas.

### • AREA, VOLUME, AND SURFACE AREA

- 9.C: The student applies mathematical process standards to solve geometric problems. determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles; and
- 1.A: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;
- 1.C: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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;

- 1.F: The student uses mathematical processes to acquire and demonstrate mathematical understanding. analyze mathematical relationships to connect and communicate mathematical ideas; and
- 9.A: The student applies mathematical process standards to solve geometric problems. solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids;

## Unit 11: Statistics and Sampling

### • POPULATIONS AND SAMPLES

- 6.F: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. use data from a random sample to make inferences about a population;
- 12.B: The student applies mathematical process standards to use statistical representations to analyze data. use data from a random sample to make inferences about a population; and
- 12.C: The student applies mathematical process standards to use statistical representations to analyze data. compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations.
- 6.C: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. make predictions and determine solutions using experimental data for simple and compound events;
- 6.H: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. solve problems using qualitative and quantitative predictions and comparisons from simple experiments; and
- 1.B: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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;

### • COMPARING DATA SETS VISUALLY

- 6.G: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents;
- 12.A: The student applies mathematical process standards to use statistical representations to analyze data. compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads;

### • USING STATISTICAL MEASURES TO COMPARE DATA SETS

- 12.A: The student applies mathematical process standards to use statistical representations to analyze data. compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads;
- 12.C: The student applies mathematical process standards to use statistical representations to analyze data. compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations.
- 1.D: The student uses mathematical processes to acquire and demonstrate mathematical understanding. communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

## Unit 12: Probability

### • CALCULATING PROBABILITY

- 1.C: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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;
- 1.D: The student uses mathematical processes to acquire and demonstrate mathematical understanding. communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- 1.G: The student uses mathematical processes to acquire and demonstrate mathematical understanding. display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
- 6.E: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. find the probabilities of a simple event and its complement and describe the relationship between the two;
- 6.D: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. make predictions and determine solutions using theoretical probability for simple and compound events;
- 6.C: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. make predictions and determine solutions using experimental data for simple and compound events;
- 6.H: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. solve problems using qualitative and quantitative predictions and comparisons from simple experiments; and
- 6.I: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces.

### • PROBABILITY OF COMPOUND EVENTS

- 6.C: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. make predictions and determine solutions using experimental data for simple and compound events;
- 6.D: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. make predictions and determine solutions using theoretical probability for simple and compound events;
- 6.I: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces.
- 1.C: The student uses mathematical processes to acquire and demonstrate mathematical understanding. 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;
- 1.D: The student uses mathematical processes to acquire and demonstrate mathematical understanding. communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- 6.A: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. represent sample spaces for simple and compound events using lists and tree diagrams;
- 1.G: The student uses mathematical processes to acquire and demonstrate mathematical understanding. display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
- **SIMULATIONS**
  - 6.B: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. select and use different simulations to represent simple and compound events with and without technology;
  - 6.C: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. make predictions and determine solutions using experimental data for simple and compound events;
  - 6.I: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces.
  - 6.D: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. make predictions and determine solutions using theoretical probability for simple and compound events;
  - 6.H: The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships. solve problems using qualitative and quantitative predictions and comparisons from simple experiments; and