

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. RATE, RATIO, AND PROPORTION

• UNIT RATES

- **4.B** calculate unit rates from rates in mathematical and real-world problems;
- **4.D** solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems; and
- **4.E** convert between measurement systems, including the use of proportions and the use of unit rates.

• IDENTIFYING PROPORTIONAL RELATIONSHIPS

- **4.A** represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$;
- **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;

• USING PROPORTIONS TO SOLVE PROBLEMS

- **4.D** solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems; and

2. PROPORTIONAL REASONING

• UNIT CONVERSIONS

- **4.E** convert between measurement systems, including the use of proportions and the use of unit rates.

• ANALYZING PROPORTIONAL RELATIONSHIPS

- **4.B** calculate unit rates from rates in mathematical and real-world problems;
- **4.C** determine the constant of proportionality ($k = y/x$) within mathematical and real-world problems;
- **4.D** 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** analyze mathematical relationships to connect and communicate mathematical ideas; and
- **4.C** determine the constant of proportionality ($k = y/x$) within mathematical and real-world problems;
- **4.A** represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$;

3. ADDITION AND SUBTRACTION OF RATIONAL NUMBERS

- **ADDING RATIONAL NUMBERS**

- **3.A** add, subtract, multiply, and divide rational numbers fluently; and
- **3.B** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
- **1.A** apply mathematics to problems arising in everyday life, society, and the workplace;

- **SUBTRACTING RATIONAL NUMBERS**

- **3.A** add, subtract, multiply, and divide rational numbers fluently; and
- **3.B** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
- **1.A** apply mathematics to problems arising in everyday life, society, and the workplace;

4. MULTIPLICATION AND DIVISION OF RATIONAL NUMBERS

- **MULTIPLYING RATIONAL NUMBERS**

- **3.A** add, subtract, multiply, and divide rational numbers fluently; and
- **3.B** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
- **1.A** apply mathematics to problems arising in everyday life, society, and the workplace;

- **DIVIDING RATIONAL NUMBERS**

- **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.A** apply mathematics to problems arising in everyday life, society, and the workplace;
- **3.A** add, subtract, multiply, and divide rational numbers fluently; and
- **3.B** 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** add, subtract, multiply, and divide rational numbers fluently; and
- **3.B** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of 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;

5. OPERATIONS WITH FRACTIONS AND DECIMALS

- **DIVIDING FRACTIONS**

- **3.A** add, subtract, multiply, and divide rational numbers fluently; and

- **SOLVING PROBLEMS BY DIVIDING FRACTIONS**

- **3.B** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
- **3.A** add, subtract, multiply, and divide rational numbers fluently; and

- **DECIMAL OPERATIONS**

- **3.A** add, subtract, multiply, and divide rational numbers fluently; and
- **3.B** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.
- **9.A** solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids;

6. EQUATIONS AND INEQUALITIES

- **SOLUTIONS OF EQUATIONS AND INEQUALITIES**

- **11.B** determine if the given value(s) make(s) one-variable, two-step equations and inequalities true; and

- **SOLVING TWO-STEP EQUATIONS**

- **11.A** model and solve one-variable, two-step equations and inequalities;
- **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.E** 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** write one-variable, two-step equations and inequalities to represent constraints or conditions within problems;
- **10.B** represent solutions for one-variable, two-step equations and inequalities on number lines; and

- **SOLVING LINEAR INEQUALITIES**

- **10.B** represent solutions for one-variable, two-step equations and inequalities on number lines; and
- **11.A** model and solve one-variable, two-step equations and inequalities;
- **10.A** write one-variable, two-step equations and inequalities to represent constraints or conditions within 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;
- **1.E** create and use representations to organize, record, and communicate mathematical ideas;
- **11.B** determine if the given value(s) make(s) one-variable, two-step equations and inequalities true; and

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** 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.E** create and use representations to organize, record, and communicate mathematical ideas;
- **4.A** represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$;

- **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** 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;
- **4.A** represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$;
- **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;

8. SIMILARITY AND SCALE DRAWINGS

● SIMILARITY AND DILATIONS

- **1.D** communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- **5.A** generalize the critical attributes of similarity, including ratios within and between similar shapes;
- **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;
- **5.C** solve mathematical and real-world problems involving similar shape and scale drawings.

● SCALE DRAWINGS

- **5.C** solve mathematical and real-world problems involving similar shape and scale drawings.

9. ANGLE RELATIONSHIPS

● ANGLE RELATIONSHIPS IN TRIANGLES

- **1.F** analyze mathematical relationships to connect and communicate mathematical ideas; and
- **11.C** 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** analyze mathematical relationships to connect and communicate mathematical ideas; and
- **11.C** write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships.

10. GEOMETRY IN TWO AND THREE DIMENSIONS

● CIRCLES

- **9.B** determine the circumference and area of circles;
- **5.B** describe π as the ratio of the circumference of a circle to its diameter; and
- **8.C** 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** determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles; and
- **1.A** apply mathematics to problems arising in everyday life, society, and the workplace;
- **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;
- **1.F** analyze mathematical relationships to connect and communicate mathematical ideas; and
- **9.A** solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids;

11. STATISTICS AND SAMPLING

• POPULATIONS AND SAMPLES

- **6.F** use data from a random sample to make inferences about a population;
- **12.B** use data from a random sample to make inferences about a population; and
- **12.C** compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations.
- **6.C** make predictions and determine solutions using experimental data for simple and compound events;
- **6.H** solve problems using qualitative and quantitative predictions and comparisons from simple experiments; and
- **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;

• COMPARING DATA SETS VISUALLY

- **6.G** 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** 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** compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads;
- **12.C** compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations.
- **1.D** communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

12. PROBABILITY

• CALCULATING PROBABILITY

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

• PROBABILITY OF COMPOUND EVENTS

- **6.C** make predictions and determine solutions using experimental data for simple and compound events;
- **6.D** make predictions and determine solutions using theoretical probability for simple and compound events;
- **6.I** determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces.
- **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;
- **1.D** communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- **6.A** represent sample spaces for simple and compound events using lists and tree diagrams;
- **1.G** display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

- **SIMULATIONS**

- **6.B** *select and use different simulations to represent simple and compound events with and without technology;*
- **6.C** *make predictions and determine solutions using experimental data for simple and compound events;*
- **6.I** *determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces.*
- **6.D** *make predictions and determine solutions using theoretical probability for simple and compound events;*
- **6.H** *solve problems using qualitative and quantitative predictions and comparisons from simple experiments; and*