

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: Ratios and Rates

- **RATIOS**

- 4.C: The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. give examples of ratios as multiplicative comparisons of two quantities describing the same attribute;
- 4.E: The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. represent ratios and percents with concrete models, fractions, and decimals;
- 5.A: The student applies mathematical process standards to solve problems involving proportional relationships. 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: The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;

- **RATES AND UNIT RATES**

- 4.D: The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients;
- 5.A: The student applies mathematical process standards to solve problems involving proportional relationships. represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;
- 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.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;
- 4.B: The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;

- **REPRESENTING PROPORTIONAL RELATIONSHIPS**

- 5.A: The student applies mathematical process standards to solve problems involving proportional relationships. represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;
- 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 2: Using Rational Numbers

- **SOLVING PERCENT 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;

- 4.E: The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. represent ratios and percents with concrete models, fractions, and decimals;
- 4.F: The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. 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: The student applies mathematical process standards to solve problems involving proportional relationships. 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: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. 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: The student applies mathematical process standards to solve problems involving proportional relationships. use equivalent fractions, decimals, and percents to show equal parts of the same whole.
- 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.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;
- 4.G: The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money; and
- **UNIT CONVERSIONS**
 - 3.B: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. 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: The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. convert units within a measurement system, including the use of proportions and unit rates.
 - 4.B: The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates;

- 5.A: The student applies mathematical process standards to solve problems involving proportional relationships. represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;

Unit 3: Signed Numbers

- **SIGNED 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;
- 2.B: The student applies mathematical process standards to represent and use rational numbers in a variety of forms. identify a number, its opposite, and its absolute value;
- 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;
- 2.C: The student applies mathematical process standards to represent and use rational numbers in a variety of forms. locate, compare, and order integers and rational numbers using a number line;

- **INEQUALITIES AND COMPARISON**

- 2.C: The student applies mathematical process standards to represent and use rational numbers in a variety of forms. locate, compare, and order integers and rational numbers using a number line;
- 1.E: The student uses mathematical processes to acquire and demonstrate mathematical understanding. create and use representations to organize, record, and communicate mathematical ideas;
- 2.D: The student applies mathematical process standards to represent and use rational numbers in a variety of forms. order a set of rational numbers arising from mathematical and real-world contexts; and

Unit 4: Absolute Value and the Coordinate Plane

- **ABSOLUTE VALUE**

- 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;
- 2.B: The student applies mathematical process standards to represent and use rational numbers in a variety of forms. identify a number, its opposite, and its absolute value;
- 2.C: The student applies mathematical process standards to represent and use rational numbers in a variety of forms. locate, compare, and order integers and rational numbers using a number line;

- **PLOTTING POINTS IN THE COORDINATE PLANE**

- 2.C: The student applies mathematical process standards to represent and use rational numbers in a variety of forms. 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.

Unit 5: Expressions

• EQUIVALENT EXPRESSIONS

- 7.A: The student applies mathematical process standards to develop concepts of expressions and equations. generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization;
- 7.C: The student applies mathematical process standards to develop concepts of expressions and equations. determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations; and
- 7.D: The student applies mathematical process standards to develop concepts of expressions and equations. generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.

• EVALUATING EXPRESSIONS

- 7.A: The student applies mathematical process standards to develop concepts of expressions and equations. generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization;

Unit 6: Basics of Equations

• INDEPENDENT AND DEPENDENT VARIABLES

- 6.A: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. identify independent and dependent quantities from tables and graphs;
- 6.B: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. write an equation that represents the relationship between independent and dependent quantities from a table; and
- 6.C: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. represent a given situation using verbal descriptions, tables, graphs, and equations in the form $=$ or $= +$.
- 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.C: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. represent a given situation using verbal descriptions, tables, graphs, and equations in the form $=$ or $= +$.

• MULTIPLE REPRESENTATIONS: TABLES, GRAPHS, AND EQUATIONS

- 6.C: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. represent a given situation using verbal descriptions, tables, graphs, and equations in the form $=$ or $= +$.

- 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;
- 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.C: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. represent a given situation using verbal descriptions, tables, graphs, and equations in the form $=$ or $= +$.
- 6.B: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. write an equation that represents the relationship between independent and dependent quantities from a table; and
- 6.C: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. represent a given situation using verbal descriptions, tables, graphs, and equations in the form $=$ or $= +$.
- 6.A: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. identify independent and dependent quantities from tables and graphs;
- 6.C: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. represent a given situation using verbal descriptions, tables, graphs, and equations in the form $=$ or $= +$.

Unit 7: Solving Equations and Inequalities 1

• SOLUTIONS OF EQUATIONS AND INEQUALITIES

- 7.B: The student applies mathematical process standards to develop concepts of expressions and equations. distinguish between expressions and equations verbally, numerically, and algebraically;
- 10.B: The student applies mathematical process standards to use equations and inequalities to solve problems. determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.
- 10.A: The student applies mathematical process standards to use equations and inequalities to solve problems. model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and

• SOLVING ADDITION EQUATIONS

- 10.A: The student applies mathematical process standards to use equations and inequalities to solve problems. model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; 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.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;
- 6.C: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. represent a given situation using verbal descriptions, tables, graphs, and equations in the form $=$ or $= +$.
- 9.A: The student applies mathematical process standards to use equations and inequalities to represent situations. write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;
- 10.B: The student applies mathematical process standards to use equations and inequalities to solve problems. determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.
- 6.C: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. represent a given situation using verbal descriptions, tables, graphs, and equations in the form $=$ or $= +$.
- **SOLVING MULTIPLICATION EQUATIONS**
 - 10.A: The student applies mathematical process standards to use equations and inequalities to solve problems. model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; 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.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;
 - 6.C: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. represent a given situation using verbal descriptions, tables, graphs, and equations in the form $=$ or $= +$.
 - 9.A: The student applies mathematical process standards to use equations and inequalities to represent situations. write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;
 - 6.C: The student applies mathematical process standards to use multiple representations to describe algebraic relationships. represent a given situation using verbal descriptions, tables, graphs, and equations in the form $=$ or $= +$.

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

Unit 8: Solving Equations and Inequalities 2

• SOLVING INEQUALITIES

- 10.A: The student applies mathematical process standards to use equations and inequalities to solve problems. model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and
- 10.B: The student applies mathematical process standards to use equations and inequalities to solve problems. determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.
- 9.A: The student applies mathematical process standards to use equations and inequalities to represent situations. write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;
- 9.C: The student applies mathematical process standards to use equations and inequalities to represent situations. write corresponding real-world problems given one-variable, one-step equations or inequalities.

• FORMULATING AND SOLVING INEQUALITIES FROM WORD 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;
- 9.A: The student applies mathematical process standards to use equations and inequalities to represent situations. write one-variable, one-step equations and inequalities to represent constraints or conditions within problems;
- 10.A: The student applies mathematical process standards to use equations and inequalities to solve problems. model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts; and

Unit 9: Adding and Subtracting Rational Numbers

• ADDING RATIONAL NUMBERS

- 2.B: The student applies mathematical process standards to represent and use rational numbers in a variety of forms. identify a number, its opposite, and its absolute value;
- 3.D: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. add, subtract, multiply, and divide integers fluently; and

- 3.C: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. represent integer operations with concrete models and connect the actions with the models to standardized algorithms;
- **SUBTRACTING RATIONAL NUMBERS**
 - 7.D: The student applies mathematical process standards to develop concepts of expressions and equations. generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.
 - 3.C: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. represent integer operations with concrete models and connect the actions with the models to standardized algorithms;
 - 3.D: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. add, subtract, multiply, and divide integers fluently; and
- **USING PROPERTIES TO ADD AND SUBTRACT RATIONAL NUMBERS**
 - 3.C: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. represent integer operations with concrete models and connect the actions with the models to standardized algorithms;

Unit 10: Multiplying and Dividing Rational Numbers

- **MULTIPLYING RATIONAL NUMBERS**
 - 3.C: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. represent integer operations with concrete models and connect the actions with the models to standardized algorithms;
 - 3.D: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. add, subtract, multiply, and divide integers fluently; and
 - 3.E: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. multiply and divide positive rational numbers fluently.
- **DIVIDING RATIONAL NUMBERS**
 - 3.C: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. represent integer operations with concrete models and connect the actions with the models to standardized algorithms;
 - 3.D: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. add, subtract, multiply, and divide integers fluently; and
 - 3.A: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;

- 3.E: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. multiply and divide positive rational numbers fluently.
- **USING PROPERTIES TO MULTIPLY AND DIVIDE RATIONAL NUMBERS**
 - 3.D: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. add, subtract, multiply, and divide integers fluently; and
 - 3.E: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. multiply and divide positive rational numbers fluently.
 - 3.A: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;
 - 3.C: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. represent integer operations with concrete models and connect the actions with the models to standardized algorithms;

Unit 11: Operations with Fractions and Decimals

- **DIVIDING FRACTIONS**
 - 2.E: The student applies mathematical process standards to represent and use rational numbers in a variety of forms. extend representations for division to include fraction notation such as $\frac{a}{b}$ represents the same number as $a \div b$ where $b \neq 0$.
 - 3.A: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;
 - 3.E: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. multiply and divide positive rational numbers fluently.
- **SOLVING PROBLEMS BY DIVIDING FRACTIONS**
 - 3.E: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. multiply and divide positive rational numbers fluently.
- **DECIMAL OPERATIONS**
 - 3.A: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;
 - 3.E: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. multiply and divide positive rational numbers fluently.

- 8.D: The student applies mathematical process standards to use geometry to represent relationships and solve problems. 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.

Unit 12: Geometry

- **GEOMETRIC DRAWINGS**

- 8.A: The student applies mathematical process standards to use geometry to represent relationships and solve problems. 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: The student applies mathematical process standards to use geometry to represent relationships and solve problems. 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;

Unit 13: Area and Volume

- **AREA**

- 1.E: The student uses mathematical processes to acquire and demonstrate mathematical understanding. create and use representations to organize, record, and communicate mathematical ideas;
- 8.B: The student applies mathematical process standards to use geometry to represent relationships and solve problems. model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes;
- 8.D: The student applies mathematical process standards to use geometry to represent relationships and solve problems. 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: 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;
- 3.A: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;
- 3.B: The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. 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: The student applies mathematical process standards to use geometry to represent relationships and solve problems. 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: The student applies mathematical process standards to use geometry to represent relationships and solve problems. 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: The student applies mathematical process standards to use geometry to represent relationships and solve problems. 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.

Unit 14: Introduction to Statistics

- **STATISTICAL QUESTIONS AND DATA DISTRIBUTIONS**

- 1.F: The student uses mathematical processes to acquire and demonstrate mathematical understanding. analyze mathematical relationships to connect and communicate mathematical ideas; and
- 12.B: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;
- 12.C: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. 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: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;
- 13.B: The student applies mathematical process standards to use numerical or graphical representations to solve problems. distinguish between situations that yield data with and without variability.

- **MEASURES OF CENTER AND VARIABILITY**

- 12.C: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. 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

Unit 15: Data Displays

• BOX PLOTS

- 12.A: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots;
- 12.C: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. 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: The student applies mathematical process standards to use numerical or graphical representations to solve problems. interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots; and
- 12.B: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;
- 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.F: The student uses mathematical processes to acquire and demonstrate mathematical understanding. analyze mathematical relationships to connect and communicate mathematical ideas;
and

• DOT PLOTS AND HISTOGRAMS

- 12.A: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots;
- 12.C: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. 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: The student applies mathematical process standards to use numerical or graphical representations to solve problems. interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots; 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.F: The student uses mathematical processes to acquire and demonstrate mathematical understanding. analyze mathematical relationships to connect and communicate mathematical ideas; and

Unit 16: Summarizing Data

• SUMMARIZING DATA USING MEASURES OF CENTER AND VARIABILITY

- 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.F: The student uses mathematical processes to acquire and demonstrate mathematical understanding. analyze mathematical relationships to connect and communicate mathematical ideas; and
- 12.B: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;
- 12.C: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. 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: The student uses mathematical processes to acquire and demonstrate mathematical understanding. apply mathematics to problems arising in everyday life, society, and the workplace;
- 1.F: The student uses mathematical processes to acquire and demonstrate mathematical understanding. analyze mathematical relationships to connect and communicate mathematical ideas; and
- 12.D: The student applies mathematical process standards to use numerical or graphical representations to analyze problems. 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.