

Mathematical Process Standards

6.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Tools to Know

- 6.1(A) apply mathematics to problems arising in everyday life, society, and the workplace
- 6.1(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
- 6.1(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

Representation and Comparison of Rational Numbers

Connected Knowledge and Skills 6.2

6.2 Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms.

STAAR	Readiness Standards	Supporting Standards
3-4 items	6.2(D) order a set of rational numbers arising from mathematical and real-world contexts	6.2(A) classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers 6.2(C) locate, compare, and order integers and rational numbers using a number line

All Operations with Rational Numbers

6.3 Number and operations. The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying the solutions.

4-5 items	6.3(D) add, subtract, multiply, and divide integers fluently 6.3(E) multiply and divide positive rational numbers fluently	6.2(B) identify a number, its opposite, and its absolute value 6.2(E) extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$ 6.3(A) recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values 6.3(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 6.3(C) represent integer operations with concrete models and connect the actions with the models to standardized algorithms
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Proportional Reasoning

6.4 Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations.

6.5 Proportionality. The student applies mathematical process standards to solve problems involving proportional relationships.

5-8 items	6.4(B) apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates 6.4(G) generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money 6.4(H) convert units within a measurement system, including the use of proportions and unit rates 6.5(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	6.4(C) give examples of ratios as multiplicative comparisons of two quantities describing the same attribute 6.4(D) give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients 6.4(E) represent ratios and percents with concrete models, fractions, and decimals 6.4(F) represent benchmark fractions and percents such as 1%, 10%, 25%, $33\frac{1}{3}\%$, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers 6.5(A) represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions 6.5(C) use equivalent fractions, decimals, and percents to show equal parts of the same whole
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Expressions, Equations, and Inequalities

6.7 Expressions, equations, and relationships. The student applies mathematical process standards to develop concepts of expressions and equations.

6.9 Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to represent situations.

6.10 Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to solve problems.

STAAR	Readiness Standards	Supporting Standards
8-9 items	<p>6.7(A) generate equivalent numerical expressions using order of operations, including whole number exponents, and prime factorization</p> <p>6.7(D) generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties</p> <p>6.10(A) model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts</p>	<p>6.7(B) distinguish between expressions and equations verbally, numerically, and algebraically</p> <p>6.7(C) determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations</p> <p>6.9(A) write one-variable, one-step equations and inequalities to represent constraints or conditions within problems</p> <p>6.9(B) represent solutions for one-variable, one-step equations and inequalities on number lines</p> <p>6.9(C) write corresponding real-world problems given one-variable, one-step equations or inequalities</p> <p>6.10(B) determine if the given value(s) make(s) one-variable, one-step equations or inequalities true</p>

Algebraic Representations

Connected Knowledge and Skills 6.4

6.6 Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships.

6.11 Measurement and data. The student applies mathematical process standards to use coordinate geometry to identify locations on a plane.

3-5 items	<p>6.6(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$</p> <p>6.11(A) graph points in all four quadrants using ordered pairs of rational number</p>	<p>6.4(A) compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships</p> <p>6.6(A) identify independent and dependent quantities from tables and graphs</p> <p>6.6(B) write an equation that represents the relationship between independent and dependent quantities from a table</p>
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Geometry and Measurement

Connected Knowledge and Skills 6.4

6.8 Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems.

4-5 items	<p>6.4(H) convert units within a measurement system, including the use of proportions and unit rates</p> <p>6.8(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</p>	<p>6.8(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</p> <p>6.8(B) model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes</p> <p>6.8(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</p>
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Data Analysis

6.12 Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to analyze problems.

6.13 Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to solve problems.

5-6 items	<p>6.12(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</p> <p>6.12(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</p> <p>6.13(A) interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots</p>	<p>6.12(A) represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots</p> <p>6.12(B) use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution</p> <p>6.13(B) distinguish between situations that yield data with and without variability</p>
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Personal Financial Literacy		
6.14 Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor.		
STAAR	Readiness Standards	Supporting Standards
2-3 items		6.14(A) compare the features and costs of a checking account and a debit card offered by different local financial institutions 6.14(B) distinguish between debit cards and credit cards 6.14(C) balance a check register that includes deposits, withdrawals, and transfers 6.14(E) describe the information in a credit report and how long it is retained 6.14(F) describe the value of credit reports to borrowers and to lenders 6.14(G) explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study 6.14(H) compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income
	SEs Not Included in Assessed Curriculum	6.14(D) explain why it is important to establish a positive credit history
38 items (4 Griddable)	23-25 questions from Readiness Standards	13-15 questions from Supporting Standards

Mathematical Process Standards	
6.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.	
Ways to Show	
6.1(D)	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
6.1(E)	create and use representations to organize, record, and communicate mathematical ideas
6.1(F)	analyze mathematical relationships to connect and communicate mathematical ideas
6.1(G)	display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

NOTE: The classification of standards on this Snapshot represents the reviewed and synthesized input of a sample of Texas Math teachers. This Snapshot DOES NOT represent a publication of the Texas Education Agency. District curriculum may reflect other classifications.