Mathematical Process Standards

8.1(A)	8.1(B)	8.1(C)	8.1(D)	8.1(E)	8.1(F)	8.1(G)
apply mathematics to problems arising in everyday life, society, and the workplace	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	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	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	create and use representations to organize, record, and communicate mathematical ideas	analyze mathematical relationships to connect and communicate mathematical ideas	display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

Rptg Cat	STAAR	Readiness Standards	Supporting Standards
1 Numerical Representations and Relationships	**5**	8.2(D) order a set of real numbers arising from mathematical and real-world contexts	8.2(A) extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers 8.2(B) approximate the value of an irrational number, including π and square roots of numbers less than 225, and locate that rational number approximation on a number line 8.2(C) convert between standard decimal notation and scientific notation
2 Computations and Algebraic Relationships	**22**	8.4(B) graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship 8.4(C) use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems 8.5(G) identify functions using sets of ordered pairs, tables, mappings, and graphs 8.5(I) write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations 8.8(C) model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants	8.4(A) use similar right triangles to develop an understanding that slope, m, given as the rate comparing the change in y-values to the change in x-values, $(y_2 - y_1)/(x_2 - x_1)$, is the same for any two points (x_1, y_1) and (x_2, y_2) on the same line 8.5(A) represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$ 8.5(B) represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where $b \neq 0$ 8.5(E) solve problems involving direct variation 8.5(F) distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$, where $b \neq 0$ 8.5(H) identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems 8.8(A) write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants 8.8(B) write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants 8.9(A) identify and verify the values of x and y that simultaneously satisfy two linear equations in the form $y = mx + b$ from the intersections of the graphed equations
3 Geometry and Measurement	**20**	8.3(C) use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation 8.7(A) solve problems involving the volume of cylinders, cones, and spheres 8.7(B) use previous knowledge of surface area to make connections to the formulas for lateral and total surface area and determine solutions for problems involving rectangular prisms, triangular prisms, and cylinders 8.7(C) use the Pythagorean theorem and its converse to solve problems 8.10(C) explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation	8.3(A) generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation 8.3(B) compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane 8.6(A) describe the volume formula $V = Bh$ of a cylinder in terms of its base area and its height 8.6(C) use models and diagrams to explain the Pythagorean theorem 8.7(D) determine the distance between two points on a coordinate plane using the Pythagorean theorem 8.8(D) use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles 8.10(A) generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane 8.10(B) differentiate between transformations that preserve congruence and those that do not 8.10(D) model the effect on linear and area measurements of dilated two-dimensional shapes
4 Data Analysis and Personal Financial Literacy	**9**	8.5(D) use a trend line that approximates the linear relationship between bivariate sets of data to make predictions 8.12(D) calculate and compare simple interest and compound interest earnings	8.5(C) contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation 8.11(A) construct a scatterplot and describe the observed data to address questions of association such as linear, non-linear, and no association between bivariate data 8.11(B) determine the mean absolute deviation and use this quantity as a measure of the average distance data are from the mean using a data set of no more than 10 data points 8.12(A) solve real-world problems comparing how interest rate and loan length affect the cost of credit 8.12(C) explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time 8.12(G) estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college
# Items	**56** (4 Griddable)	**34-36 questions from Readiness Standards**	**20-22 questions from Supporting Standards**