Texas Mathematics

Grade 7

Adopted 2012

Mathematical process standards	**1. The student uses mathematical processes to acquire and demonstrate mathematical understanding** 7.1
	(A) apply mathematics to problems arising in everyday life, society, and the workplace 7.1.A
	(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 7.1.B
	(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 7.1.C
	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate 7.1.D
	(E) create and use representations to organize, record, and communicate mathematical ideas 7.1.E
	(F) analyze mathematical relationships to connect and communicate mathematical ideas 7.1.F
	(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication 7.1.G
Number and operations 7.2	**2. The student applies mathematical process standards to represent and use rational numbers in a variety of forms. The student is expected to extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers** 7.2
	(3) The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying solutions 7.3
	(A) add, subtract, multiply, and divide rational numbers fluently 7.3.A

Skip to main content

	(B) apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers 7.3.B
Proportionality	**4.** The student applies mathematical process standards to represent and solve problems involving proportional relationships 7.4
	(A) represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including d = rt 7.4.A
	(B) calculate unit rates from rates in mathematical and real-world problems 7.4.B
	(C) determine the constant of proportionality (k = y/x) within mathematical and real-world problems 7.4.C
	(D) solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems 7.4.D
	(E) convert between measurement systems, including the use of proportions and the use of unit rates 7.4.E
	(5) The student applies mathematical process standards to use geometry to describe or solve problems involving proportional relationships 7.5
	(A) generalize the critical attributes of similarity, including ratios within and between similar shapes 7.5.A
	(B) describe π as the ratio of the circumference of a circle to its diameter 7.5.B
	(C) solve mathematical and real-world problems involving similar shape and scale drawings 7.5.C
	(6) The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships 7.6
	(A) represent sample spaces for simple and compound events using lists and tree diagrams 7.6.A
	(B) select and use different simulations to represent simple and compound events with and without technology 7.6.B
	(C) make predictions and determine solutions using experimental data for simple and compound events 7.6.C
	(D) make predictions and determine solutions using theoretical probability for simple and compound events 7.6.D

Skip to main content

	(E) find the probabilities of a simple event and its complement and describe the relationship between the two 7.6.E
	(F) use data from a random sample to make inferences about a population 7.6.F
	(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; 7.6.G
	(H) solve problems using qualitative and quantitative predictions and comparisons from simple experiments; and 7.6.H
	(I) determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces. 7.6.I
Expressions, equations, and relationships	**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 7.7
	(8) The student applies mathematical process standards to develop geometric relationships with volume 7.8
	(A) model the relationship between the volume of a rectangular prism and a rectangular pyramid having both congruent bases and heights and connect that relationship to the formulas 7.8.A
	(B) explain verbally and symbolically the relationship between the volume of a triangular prism and a triangular pyramid having both congruent bases and heights and connect that relationship to the formulas 7.8.B
	(C) use models to determine the approximate formulas for the circumference and area of a circle and connect the models to the actual formulas 7.8.C
	(9) The student applies mathematical process standards to solve geometric problems 7.9
	(A) solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids 7.9.A
	(B) determine the circumference and area of circles 7.9.B
	(C) determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles 7.9.C
	(D) solve problems involving the lateral and total surface area of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid by determining the area of the shape's net 7.9.D

Skip to main content

	(10) The student applies mathematical process standards to use one-variable equations and inequalities to represent situations 7.10
	(A) write one-variable, two-step equations and inequalities to represent constraints or conditions within problems 7.10.A
	(B) represent solutions for one-variable, two-step equations and inequalities on number lines 7.10.B
	(C) write a corresponding real-world problem given a one-variable, two-step equation or inequality 7.10.C
	(11) The student applies mathematical process standards to solve one-variable equations and inequalities 7.11
	(A) model and solve one-variable, two-step equations and inequalities 7.11.A
	(B) determine if the given value(s) make(s) one-variable, two-step equations and inequalities true 7.11.B
	(C) write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships 7.11.C
Measurement and data	**12.** The student applies mathematical process standards to use statistical representations to analyze data 7.12
	(A) compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads 7.12.A
	(B) use data from a random sample to make inferences about a population 7.12.B
	(C) compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations 7.12.C
Personal financial literacy	**13.** 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 7.13
	(A) calculate the sales tax for a given purchase and calculate income tax for earned wages 7.13.A
	(B) identify the components of a personal budget, including income; planned savings for college, retirement, and emergencies; taxes; and fixed and variable expenses, and calculate what percentage each category comprises of the total budget 7.13.B
	(C) create and organize a financial assets and liabilities record and construct a net worth statement 7.13.C

Skip to main content

(D) use a family budget estimator to determine the minimum household budget and average hourly wage needed for a family to meet its basic needs in the student's city or another large city nearby `7.13.D`

(E) calculate and compare simple interest and compound interest earnings `7.13.E`

(F) analyze and compare monetary incentives, including sales, rebates, and coupons `7.13.F`