

TN DOE unique identifier	SPI	ACT content area	Range	<u>ACT College Readiness Standard</u>	NAEP content area	Grade	<u>NAEP 2009 Math Content Area Standard</u>
Grade 6							
Grade 6 SPI 0606.1.1	Make conjectures and predictions based on data.	PSDA	16-19 28-32	Read tables and graphs Interpret and use information from figures, tables, and graphs	DASP	8	1c) Solve problems by estimating and computing with data from a single set or across sets of data.
Grade 6 SPI 0606.1.2	Judge the reasonableness of the results of rational number estimates and/or computations.				NPO	8	b) Make estimates appropriate to a given situation by: <ul style="list-style-type: none"> • Identifying when estimation is appropriate, • Determining the level of accuracy needed, • Selecting the appropriate method of estimation, or • Analyzing the effect of an estimation method on the accuracy of results.
Grade 6 SPI 0606.1.3	Use concrete, pictorial, and symbolic representation for integers.				NPO	8	1h) Order or compare rational numbers (fractions, decimals, percents, or integers) using various models and representations (e.g., number line).
Grade 6 SPI 0606.1.4	Select the representation that models one of the arithmetic properties (commutative, associative, or distributive).	NCP	28-32	Apply number properties involving positive/negative numbers	NPO	8	5e) Apply basic properties of operations.
Grade 6 SPI 0606.1.5	Model algebraic expressions using algebra tiles.				ALG	8	3c) Perform basic operations, using appropriate tools, on linear algebraic expressions (including grouping and order of multiple operations involving basic operations, exponents, roots, simplifying, and expanding).

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	mixed numbers, and decimals.		24-27	tax added, percentage off, and computing with a given average Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)			relationships).
		28-32	Solve word problems containing several rates, proportions, or percentages	12	4d) Solve multi-step problems involving percentages, including compound percentages.		
		33-36	Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings)				
Grade 6 SPI 0606.2.5	Transform numbers from one form to another (fractions, decimals, percents, and mixed numbers).	NCP	13-15	Recognize equivalent fractions and fractions in lowest terms	NPO	8	1e) Recognize, translate between, or apply multiple representations of rational numbers (fractions, decimals, and percents) in meaningful contexts. 4a) Use place value to model and describe integers and decimals.
Grade 6 SPI 0606.2.6	Solve problems involving ratios, rates and percents.	BOA	20-23	Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average	NPO	8	4d) Solve problems involving percentages (including percent increase and decrease, interest rates, tax, discount, tips, or part/whole relationships).
	28-32	Solve word problems containing several rates, proportions, or percentages					
	33-36	Solve complex arithmetic problems involving percent of increase or					

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		EEI	24-27	decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings) Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)			
Grade 6 SPI 0606.2.7	Locate positive rational numbers on the number line.	GR	13-15 16-19	Identify the location of a point with a positive coordinate on the number line Locate points on the number line and in the first quadrant	NPO	8	1b) Model or describe rational numbers or numerical relationships using number lines and diagrams. 1h) Order or compare rational numbers (fractions, decimals, percents, or integers) using various models and representations (e.g., number line).
Grade 6 SPI 0606.2.8	Locate integers on the number line.	GR	16-19	Locate points on the number line and in the first quadrant	NPO	8	1b) Model or describe rational numbers or numerical relationships using number lines and diagrams. 1h) Order or compare rational numbers (fractions, decimals, percents, or integers) using various models and representations (e.g., number line).
Grade 6 SPI 0606.3.1	Represent on a number line the solution of a linear inequality.	GR	24-27 28-32	Identify the graph of a linear inequality on the number line Match number line graphs with solution sets of linear inequalities	ALG	8	3b) Write algebraic expressions, equations, or inequalities to represent a situation.
Grade 6 SPI 0606.3.2	Use order of operations and parentheses to simplify expressions and solve problems.	EEI	20-23	Evaluate algebraic expressions by substituting integers for unknown quantities	ALG	8	3c) Perform basic operations, using appropriate tools, on linear algebraic expressions (including grouping and order of multiple operations involving basic operations, exponents, roots, simplifying, and

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							expanding).
Grade 6 SPI 0606.3.3	Write equations that correspond to given situations or represent a given mathematical relationship.	EEI	13-15 20-23 24-27	Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)	ALG	8	3b) Write algebraic expressions, equations, or inequalities to represent a situation.
Grade 6 SPI 0606.3.4	Rewrite expressions to represent quantities in different ways.	EEI	16-19 20-23	Combine like terms (e.g., $2x + 5x$) Add and subtract simple algebraic expressions	ALG	8	2 a) Translate between different representations of linear expressions using symbols, graphs, tables, diagrams, or written descriptions. 2b) Analyze or interpret linear relationships expressed in symbols, graphs, tables, diagrams, or written descriptions.
Grade 6 SPI 0606.3.5	Translate between verbal expressions or sentences and algebraic expressions or equations.	EEI	13-15 20-23 24-27	Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) Perform straightforward word-to-symbol translations Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)	ALG	8	2 a) Translate between different representations of linear expressions using symbols, graphs, tables, diagrams, or written descriptions. 2b) Analyze or interpret linear relationships expressed in symbols, graphs, tables, diagrams, or written descriptions. 3b) Write algebraic expressions, equations, or inequalities to represent a situation.
Grade 6 SPI 0606.3.6	Solve two-step linear equations using number sense, properties, and	EEI	20-23	Solve routine first-degree equations	ALG	8	4a) Solve linear equations or inequalities (e.g., $ax + b = c$ or $ax + b = cx + d$ or $ax + b > c$).

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	inverse operations.						
Grade 6 SPI 0606.3.7	Use algebraic expressions and properties to analyze numeric and geometric patterns.	NCP	28-32	Apply number properties involving prime factorization Apply number properties involving even/odd numbers and factors/multiples	ALG	8	1a) Recognize, describe, or extend numerical and geometric patterns using tables, graphs, words, or symbols.
Grade 6 SPI 0606.3.8	Select the qualitative graph that models a contextual situation (e.g., water filling then draining from a bathtub).	GR	33-36	Analyze and draw conclusions based on information from graphs in the coordinate plane	ALG	8	f) Identify or represent functional relationships in meaningful contexts including proportional, linear, and common nonlinear (e.g., compound interest, bacterial growth) in tables, graphs, words, or symbols.
Grade 6 SPI 0606.3.9	Graph ordered pairs of integers in all four quadrants of the Cartesian coordinate system	GR	20-23	Locate points in the coordinate plane	ALG	8	2c) Graph or interpret points that are represented by ordered pairs of numbers on a rectangular coordinate system.
Grade 6 SPI 0606.4.1	Identify, define or describe geometric shapes given a visual representation or a written description of its properties.	PPF	33-36	Draw conclusions based on a set of conditions	GEO	8	1b) Identify a geometric object given a written description of its properties. 1d) Draw or sketch from a written description polygons, circles, or semicircles.
Grade 6 SPI 0606.4.2	Find a missing angle measure in problems involving interior/exterior angles and/or their sums.	PPF	20-23 24-27	Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) Use several angle properties to find an unknown angle measure	GEO MEAS	8 12	3 b) Apply geometric properties and relationships in solving simple problems in two and three dimensions. 1 d) Solve problems of angle measure, including those involving triangles or other polygons or parallel lines cut by a transversal.
Grade 6 SPI 0606.4.3	Solve problems using the Triangle Inequality Theorem.	MEAS	13-15	Estimate or calculate the length of a line segment based on other lengths given on a geometric figure	GEO	8	3b) Apply geometric properties and relationships in solving simple problems in two and three dimensions.
Grade 6 SPI 0606.4.4	Calculate with circumferences and areas of circles.	MEAS	24-27	Compute the area and circumference of circles after identifying necessary information	ALG	8	4e) Use and evaluate common formulas [e.g., relationship between a circle's circumference and diameter ($C = \pi d$), distance and time

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					MEAS	8	under constant speed]. 1 f) Solve mathematical or real-world problems involving perimeter or area of plane figures such as triangles, rectangles, circles, or composite figures.
Grade 6 SPI 0606.4.5	Determine the surface area and volume of prisms, pyramids and cylinders.	MEAS	20-23 28-32	Use geometric formulas when all necessary information is given Use relationships involving area, perimeter, and volume of geometric figures to compute another measure	MEAS	8	1h) Solve problems involving volume or surface area of rectangular solids, cylinders, prisms, or composite shapes.
Grade 6 SPI 0606.4.6	Given the volume of a cone/pyramid, find the volume of the related cylinder/prism or vice versa	MEAS	28-32	Use relationships involving area, perimeter, and volume of geometric figures to compute another measure	MEAS	8	h) Solve problems involving volume or surface area of rectangular solids, cylinders, prisms, or composite shapes. h) Solve problems by determining, estimating, or comparing volumes or surface areas of three-dimensional figures.
Grade 6 SPI 0606.5.1	Determine the theoretical probability of simple and compound events in familiar contexts.	PSDA	20-23 24-27	Determine the probability of a simple event Compute straightforward probabilities for common situations	DASP	8	4b) Determine the theoretical probability of simple and compound events in familiar contexts.
Grade 6 SPI 0606.5.2	Identify features of graphs that may be misleading.	PSDA	28-32 33-36	Interpret and use information from figures, tables, and graphs Analyze and draw conclusions based on information from figures, tables, and graphs	DASP	12	5a) Identify misleading uses of data in real-world settings and critique different ways of presenting and using information.
Grade 6 SPI 0606.5.3	Determine whether or not a sample is biased				DASP	8	3a) Given a sample, identify possible sources of bias in sampling.