

Alignments of PSAT/NMSQT Skill Categories and State Standards

PSAT/NMSQT Skill Category and Description of Skills	Tennessee Math: Performance Indicators State 2008		
	Course/ Level	Standard	Standard ID
Algebra and Functions Solve problems using algebraic expressions and symbols to represent relationships, patterns and functions of different types.	Algebra I	SPI 3102.3.1 Express a generalization of a pattern in various representations including algebraic and function notation.	SPI 3102.3.1
	Algebra I	SPI 3102.3.10 Find the solution of a quadratic equation and/or zeros of a quadratic function.	SPI 3102.3.10
	Algebra I	SPI 3102.3.11 Analyze nonlinear graphs including quadratic and exponential functions that model a contextual situation.	SPI 3102.3.11
	Algebra I	SPI 3102.3.2 Operate with polynomials and simplify results.	SPI 3102.3.2
	Algebra I	SPI 3102.3.3 Factor polynomials.	SPI 3102.3.3
	Algebra I	SPI 3102.3.4 Operate with, evaluate, and simplify rational expressions including determining restrictions on the domain of the variables.	SPI 3102.3.4
	Algebra I	SPI 3102.3.5 Write and/or solve linear equations, inequalities, and compound inequalities including those containing absolute value.	SPI 3102.3.5
	Algebra I	SPI 3102.3.6 Interpret various relations in multiple representations.	SPI 3102.3.6
	Algebra I	SPI 3102.3.7 Determine domain and range of a relation, determine whether a relation is a function and/or evaluate a function at a specified rational value.	SPI 3102.3.7
	Algebra I	SPI 3102.3.8 Determine the equation of a line and/or graph a linear equation.	SPI 3102.3.8
	Algebra I	SPI 3102.3.9 Solve systems of linear equation/inequalities in two variables.	SPI 3102.3.9
	Algebra II	SPI 3103.3.1 Add, subtract and multiply polynomials; divide a polynomial by a lower degree polynomial.	SPI 3103.3.1
	Algebra II	SPI 3103.3.10 Identify and/or graph a variety of functions and their transformations.	SPI 3103.3.10
Algebra II	SPI 3103.3.11 Graph conic sections (circles, parabolas, ellipses and hyperbolas) and understand the relationship between the standard form and the key characteristics of the graph.	SPI 3103.3.11	
Algebra II	SPI 3103.3.12 Interpret graphs that depict real-world phenomena.	SPI 3103.3.12	
Algebra II	SPI 3103.3.13 Solve contextual problems using quadratic, rational, radical and exponential equations, finite geometric series or systems of equations.	SPI 3103.3.13	

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	Course/ Level	Standard	Standard ID
Algebra and Functions Solve problems using algebraic expressions and symbols to represent relationships, patterns and functions of different types.	Algebra II	SPI 3103.3.2 Solve quadratic equations and systems, and determine roots of a higher order polynomial.	SPI 3103.3.2
	Algebra II	SPI 3103.3.3 Add, subtract, multiply, divide and simplify rational expressions including those with rational and negative exponents.	SPI 3103.3.3
	Algebra II	SPI 3103.3.4 Use the formulas for the general term and summation of finite arithmetic and both finite and infinite geometric series.	SPI 3103.3.4
	Algebra II	SPI 3103.3.5 Describe the domain and range of functions and articulate restrictions imposed either by the operations or by the contextual situations which the functions represent.	SPI 3103.3.5
	Algebra II	SPI 3103.3.6 Combine functions (such as polynomial, rational, radical and absolute value expressions) by addition, subtraction, multiplication, division, or by composition and evaluate at specified values of their variables.	SPI 3103.3.6
	Algebra II	SPI 3103.3.7 Identify whether a function has an inverse, whether two functions are inverses of each other, and/or explain why their graphs are reflections over the line $y = x$.	SPI 3103.3.7
	Algebra II	SPI 3103.3.8 Solve systems of three linear equations in three variables.	SPI 3103.3.8
	Algebra II	SPI 3103.3.9 Graph the solution set of two or three linear or quadratic inequalities.	SPI 3103.3.9
	Geometry	SPI 3108.3.1 Use algebra and coordinate geometry to analyze and solve problems about geometric figures (including circles).	SPI 3108.3.1
	Geometry	SPI 3108.3.2 Use coordinate geometry to prove characteristics of polygonal figures.	SPI 3108.3.2
Geometry	SPI 3108.3.3 Describe algebraically the effect of a single transformation (reflections in the x- or y-axis, rotations, translations, and dilations) on two-dimensional geometric shapes in the coordinate plane.	SPI 3108.3.3	
Communication Express mathematical ideas precisely and communicate them coherently and clearly in the language and notation of mathematics.	Algebra I	SPI 3102.1.6 Determine and interpret slope in multiple contexts including rate of change in real-world problems.	SPI 3102.1.6
	Algebra I	SPI 3102.5.2 Identify the effect on mean, median, mode, and range when values in the data set are changed.	SPI 3102.5.2
	Algebra II	SPI 3103.1.2 Recognize and describe errors in data collection and analysis as well as identifying representations of data as being accurate or misleading.	SPI 3103.1.2

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Communication Express mathematical ideas precisely and communicate them coherently and clearly in the language and notation of mathematics.	Algebra II	SPI 3103.1.4 Use mathematical language, symbols, definitions, proofs and counterexamples correctly and precisely to effectively communicate reasoning in the process of solving problems via mathematical modeling with both linear and non-linear functions.	SPI 3103.1.4
	Algebra II	SPI 3103.3.5 Describe the domain and range of functions and articulate restrictions imposed either by the operations or by the contextual situations which the functions represent.	SPI 3103.3.5
	Algebra II	SPI 3103.3.7 Identify whether a function has an inverse, whether two functions are inverses of each other, and/or explain why their graphs are reflections over the line $y = x$.	SPI 3103.3.7
	Algebra II	SPI 3103.5.1 Compute, compare and explain summary statistics for distributions of data including measures of center and spread.	SPI 3103.5.1
	Geometry	SPI 3108.1.1 Give precise mathematical descriptions or definitions of geometric shapes in the plane and space.	SPI 3108.1.1
	Geometry	SPI 3108.1.4 Use definitions, basic postulates, and theorems about points, lines, angles, and planes to write/complete proofs and/or to solve problems.	SPI 3108.1.4
	Geometry	SPI 3108.4.2 Define, identify, describe, and/or model plane figures using appropriate mathematical symbols (including collinear and non-collinear points, lines, segments, rays, angles, triangles, quadrilaterals, and other polygons).	SPI 3108.4.2
	Geometry	SPI 3108.4.3 Identify, describe and/or apply the relationships and theorems involving different types of triangles, quadrilaterals and other polygons.	SPI 3108.4.3
Connections Connect ideas from different areas of mathematics (particularly geometry and algebra) to state or solve abstract or applied problems.	Algebra I	SPI 3102.5.4 Generate the equation of a line that fits linear data and use it to make a prediction.	SPI 3102.5.4
	Geometry	SPI 3108.3.1 Use algebra and coordinate geometry to analyze and solve problems about geometric figures (including circles).	SPI 3108.3.1
	Geometry	SPI 3108.3.2 Use coordinate geometry to prove characteristics of polygonal figures.	SPI 3108.3.2
	Geometry	SPI 3108.3.3 Describe algebraically the effect of a single transformation (reflections in the x- or y-axis, rotations, translations, and dilations) on two-dimensional geometric shapes in the coordinate plane.	SPI 3108.3.3

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<p>Connections</p> <p>Connect ideas from different areas of mathematics (particularly geometry and algebra) to state or solve abstract or applied problems.</p>	Geometry	SPI 3108.5.1 Use area to solve problems involving geometric probability (e.g. dartboard problem, shaded sector of a circle, shaded region of a geometric figure).	SPI 3108.5.1
<p>Data, Statistics, and Probability</p> <p>Analyze data, understand descriptive statistics, make inferences and determine the likelihood that certain events will occur.</p>	Algebra I	SPI 3102.5.1 Interpret displays of data to answer questions about the data set(s) (e.g., identify pattern, trends, and/or outliers in a data set).	SPI 3102.5.1
	Algebra I	SPI 3102.5.2 Identify the effect on mean, median, mode, and range when values in the data set are changed.	SPI 3102.5.2
	Algebra I	SPI 3102.5.3 Using a scatter-plot, determine if a linear relationship exists and describe the association between variables.	SPI 3102.5.3
	Algebra I	SPI 3102.5.4 Generate the equation of a line that fits linear data and use it to make a prediction.	SPI 3102.5.4
	Algebra I	SPI 3102.5.5 Determine theoretical and/or experimental probability of an event and/or its complement including using relative frequency.	SPI 3102.5.5
	Algebra II	SPI 3103.5.1 Compute, compare and explain summary statistics for distributions of data including measures of center and spread.	SPI 3103.5.1
	Algebra II	SPI 3103.5.2 Compare data sets using graphs and summary statistics.	SPI 3103.5.2
	Algebra II	SPI 3103.5.3 Analyze patterns in a scatter-plot and describe relationships in both linear and non-linear data.	SPI 3103.5.3
	Algebra II	SPI 3103.5.4 Apply the characteristics of the normal distribution.	SPI 3103.5.4
	Algebra II	SPI 3103.5.5 Determine differences between randomized experiments and observational studies.	SPI 3103.5.5
Algebra II	SPI 3103.5.6 Find the regression curve that best fits both linear and non-linear data (using technology such as a graphing calculator) and use it to make predictions.	SPI 3103.5.6	
Algebra II	SPI 3103.5.7 Determine/recognize when the correlation coefficient measures goodness of fit.	SPI 3103.5.7	

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	Course/ Level	Standard	Standard ID
Data, Statistics, and Probability Analyze data, understand descriptive statistics, make inferences and determine the likelihood that certain events will occur.	Algebra II	SPI 3103.5.8 Apply probability concepts such as conditional probability and independent events to calculate simple probability.	SPI 3103.5.8
	Geometry	SPI 3108.5.1 Use area to solve problems involving geometric probability (e.g. dartboard problem, shaded sector of a circle, shaded region of a geometric figure).	SPI 3108.5.1
Geometry and Measurement Solve problems based on understanding the properties of shapes, such as triangles and circles, and the spatial relationships between angles and lines.	Algebra I	SPI 3102.4.1 Develop and apply strategies to estimate the area of any shape on a plane grid.	SPI 3102.4.1
	Algebra I	SPI 3102.4.2 Solve contextual problems using the Pythagorean Theorem.	SPI 3102.4.2
	Algebra I	SPI 3102.4.3 Solve problems involving the distance between points or midpoint of a segment.	SPI 3102.4.3
	Algebra I	SPI 3102.4.4 Convert rates and measurements.	SPI 3102.4.4
	Geometry	SPI 3108.4.1 Differentiate between Euclidean and non-Euclidean geometries.	SPI 3108.4.1
	Geometry	SPI 3108.4.10 Identify, describe, and/or apply transformations on two and three dimensional geometric shapes.	SPI 3108.4.10
	Geometry	SPI 3108.4.11 Use basic theorems about similar and congruent triangles to solve problems.	SPI 3108.4.11
	Geometry	SPI 3108.4.12 Solve problems involving congruence, similarity, proportional reasoning and/or scale factor of two similar figures or solids.	SPI 3108.4.12
	Geometry	SPI 3108.4.13 Identify, analyze and/or use basic properties and theorems of circles to solve problems (including those relating right triangles and circles).	SPI 3108.4.13
	Geometry	SPI 3108.4.14 Use properties of right triangles to solve problems (such as involving the relationship formed when the altitude to the hypotenuse of a right triangle is drawn).	SPI 3108.4.14
	Geometry	SPI 3108.4.2 Define, identify, describe, and/or model plane figures using appropriate mathematical symbols (including collinear and non-collinear points, lines, segments, rays, angles, triangles, quadrilaterals, and other polygons).	SPI 3108.4.2
	Geometry	SPI 3108.4.3 Identify, describe and/or apply the relationships and theorems involving different types of triangles, quadrilaterals and other polygons.	SPI 3108.4.3
Geometry	SPI 3108.4.4 Analyze different types and formats of proofs.	SPI 3108.4.4	

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Skill Category and Description of Skills	Course/ Level	Standard	Standard ID
Geometry and Measurement Solve problems based on understanding the properties of shapes, such as triangles and circles, and the spatial relationships between angles and lines.	Geometry	SPI 3108.4.5 Describe solids and/or surfaces in three-dimensional space when given two-dimensional representations for the surfaces of three-dimensional objects.	SPI 3108.4.5
	Geometry	SPI 3108.4.6 Use various area of triangle formulas to solve contextual problems (e.g., Heron's formula, the area formula for an equilateral triangle and $A = \frac{1}{2}ab \sin C$).	SPI 3108.4.6
	Geometry	SPI 3108.4.7 Compute the area and/or perimeter of triangles, quadrilaterals and other polygons when one or more additional steps are required (e.g. find missing dimensions given area or perimeter of the figure, using trigonometry).	SPI 3108.4.7
	Geometry	SPI 3108.4.8 Solve problems involving area, circumference, area of a sector, and/or arclength of a circle.	SPI 3108.4.8
	Geometry	SPI 3108.4.9 Use right triangle trigonometry and cross-sections to solve problems involving surface areas and/or volumes of solids.	SPI 3108.4.9
Number and Operations Understand types of numbers (integers, fractions, decimals), their properties and the correct order of operations. Perform computations correctly.	Algebra I	SPI 3102.2.1 Operate (add, subtract, multiply, divide, simplify, powers) with radicals and radical expressions including radicands involving rational numbers and algebraic expressions.	SPI 3102.2.1
	Algebra I	SPI 3102.2.2 Multiply, divide, and square numbers expressed in scientific notation.	SPI 3102.2.2
	Algebra I	SPI 3102.2.3 Describe and/or order a given set of real numbers including both rational and irrational numbers.	SPI 3102.2.3
	Algebra II	SPI 3103.2.2 Compute with all real and complex numbers.	SPI 3103.2.2
	Algebra II	SPI 3103.2.3 Use the number system, from real to complex, to solve equations and contextual problems.	SPI 3103.2.3
	Geometry	SPI 3108.2.1 Analyze, apply, or interpret the relationships between basic number concepts and geometry (e.g. rounding and pattern identification in measurement, the relationship of pi to other rational and irrational numbers).	SPI 3108.2.1
Problem Solving Solve abstract and practical problems, applying and adapting a variety of strategies. Monitor progress and evaluate answers in terms of questions asked.	Algebra I	SPI 3102.1.3 Apply properties to evaluate expressions, simplify expressions, and justify solutions to problems.	SPI 3102.1.3
	Algebra I	SPI 3102.2.2 Multiply, divide, and square numbers expressed in scientific notation.	SPI 3102.2.2
	Algebra I	SPI 3102.3.10 Find the solution of a quadratic equation and/or zeros of a quadratic function.	SPI 3102.3.10

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Problem Solving Solve abstract and practical problems, applying and adapting a variety of strategies. Monitor progress and evaluate answers in terms of questions asked.	Algebra I	SPI 3102.3.3 Factor polynomials.	SPI 3102.3.3
	Algebra I	SPI 3102.3.4 Operate with, evaluate, and simplify rational expressions including determining restrictions on the domain of the variables.	SPI 3102.3.4
	Algebra I	SPI 3102.3.5 Write and/or solve linear equations, inequalities, and compound inequalities including those containing absolute value.	SPI 3102.3.5
	Algebra I	SPI 3102.3.7 Determine domain and range of a relation, determine whether a relation is a function and/or evaluate a function at a specified rational value.	SPI 3102.3.7
	Algebra I	SPI 3102.3.9 Solve systems of linear equation/inequalities in two variables.	SPI 3102.3.9
	Algebra I	SPI 3102.4.2 Solve contextual problems using the Pythagorean Theorem.	SPI 3102.4.2
	Algebra I	SPI 3102.4.3 Solve problems involving the distance between points or midpoint of a segment.	SPI 3102.4.3
	Algebra I	SPI 3102.5.5 Determine theoretical and/or experimental probability of an event and/or its complement including using relative frequency.	SPI 3102.5.5
	Algebra II	SPI 3103.1.3 Use technology tools to identify and describe patterns in data using non-linear and transcendental functions that approximate data as well as using those functions to solve contextual problems.	SPI 3103.1.3
	Algebra II	SPI 3103.2.2 Compute with all real and complex numbers.	SPI 3103.2.2
	Algebra II	SPI 3103.2.3 Use the number system, from real to complex, to solve equations and contextual problems.	SPI 3103.2.3
	Algebra II	SPI 3103.3.1 Add, subtract and multiply polynomials; divide a polynomial by a lower degree polynomial.	SPI 3103.3.1
	Algebra II	SPI 3103.3.13 Solve contextual problems using quadratic, rational, radical and exponential equations, finite geometric series or systems of equations.	SPI 3103.3.13
	Algebra II	SPI 3103.3.2 Solve quadratic equations and systems, and determine roots of a higher order polynomial.	SPI 3103.3.2
Algebra II	SPI 3103.3.3 Add, subtract, multiply, divide and simplify rational expressions including those with rational and negative exponents.	SPI 3103.3.3	

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Problem Solving Solve abstract and practical problems, applying and adapting a variety of strategies. Monitor progress and evaluate answers in terms of questions asked.	Algebra II	SPI 3103.3.4 Use the formulas for the general term and summation of finite arithmetic and both finite and infinite geometric series.	SPI 3103.3.4
	Algebra II	SPI 3103.3.6 Combine functions (such as polynomial, rational, radical and absolute value expressions) by addition, subtraction, multiplication, division, or by composition and evaluate at specified values of their variables.	SPI 3103.3.6
	Algebra II	SPI 3103.3.8 Solve systems of three linear equations in three variables.	SPI 3103.3.8
	Algebra II	SPI 3103.5.6 Find the regression curve that best fits both linear and non-linear data (using technology such as a graphing calculator) and use it to make predictions.	SPI 3103.5.6
	Algebra II	SPI 3103.5.8 Apply probability concepts such as conditional probability and independent events to calculate simple probability.	SPI 3103.5.8
	Geometry	SPI 3108.1.2 Determine areas of planar figures by decomposing them into simpler figures without a grid.	SPI 3108.1.2
	Geometry	SPI 3108.1.3 Use geometric understanding and spatial visualization of geometric solids to solve problems and/or create drawings.	SPI 3108.1.3
	Geometry	SPI 3108.4.11 Use basic theorems about similar and congruent triangles to solve problems.	SPI 3108.4.11
	Geometry	SPI 3108.4.12 Solve problems involving congruence, similarity, proportional reasoning and/or scale factor of two similar figures or solids.	SPI 3108.4.12
	Geometry	SPI 3108.4.13 Identify, analyze and/or use basic properties and theorems of circles to solve problems (including those relating right triangles and circles).	SPI 3108.4.13
	Geometry	SPI 3108.4.14 Use properties of right triangles to solve problems (such as involving the relationship formed when the altitude to the hypotenuse of a right triangle is drawn).	SPI 3108.4.14
	Geometry	SPI 3108.4.6 Use various area of triangle formulas to solve contextual problems (e.g., Heron's formula, the area formula for an equilateral triangle and $A = \frac{1}{2}ab \sin C$).	SPI 3108.4.6
	Geometry	SPI 3108.4.7 Compute the area and/or perimeter of triangles, quadrilaterals and other polygons when one or more additional steps are required (e.g. find missing dimensions given area or perimeter of the figure, using trigonometry).	SPI 3108.4.7
Geometry	SPI 3108.4.8 Solve problems involving area, circumference, area of a sector, and/or arclength of a circle.	SPI 3108.4.8	

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<p>Problem Solving</p> <p>Solve abstract and practical problems, applying and adapting a variety of strategies. Monitor progress and evaluate answers in terms of questions asked.</p>	Geometry	SPI 3108.4.9 Use right triangle trigonometry and cross-sections to solve problems involving surface areas and/or volumes of solids.	SPI 3108.4.9
<p>Reasoning</p> <p>Develop and use mathematical arguments and proofs to explore the truth of conjectures and justify conclusions.</p>	Algebra I	SPI 3102.1.1 Interpret patterns found in sequences, tables, and other forms of quantitative information using variables or function notation.	SPI 3102.1.1
	Algebra I	SPI 3102.1.5 Recognize and express the effect of changing constants and/or coefficients in problem solving.	SPI 3102.1.5
	Algebra I	SPI 3102.2.3 Describe and/or order a given set of real numbers including both rational and irrational numbers.	SPI 3102.2.3
	Algebra I	SPI 3102.3.11 Analyze nonlinear graphs including quadratic and exponential functions that model a contextual situation.	SPI 3102.3.11
	Algebra I	SPI 3102.3.6 Interpret various relations in multiple representations.	SPI 3102.3.6
	Algebra I	SPI 3102.4.1 Develop and apply strategies to estimate the area of any shape on a plane grid.	SPI 3102.4.1
	Algebra I	SPI 3102.5.1 Interpret displays of data to answer questions about the data set(s) (e.g., identify pattern, trends, and/or outliers in a data set).	SPI 3102.5.1
	Algebra I	SPI 3102.5.3 Using a scatter-plot, determine if a linear relationship exists and describe the association between variables.	SPI 3102.5.3
	Algebra II	SPI 3103.3.12 Interpret graphs that depict real-world phenomena.	SPI 3103.3.12
	Algebra II	SPI 3103.5.2 Compare data sets using graphs and summary statistics.	SPI 3103.5.2
	Algebra II	SPI 3103.5.3 Analyze patterns in a scatter-plot and describe relationships in both linear and non-linear data.	SPI 3103.5.3
	Algebra II	SPI 3103.5.4 Apply the characteristics of the normal distribution.	SPI 3103.5.4
	Algebra II	SPI 3103.5.5 Determine differences between randomized experiments and observational studies.	SPI 3103.5.5

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Reasoning Develop and use mathematical arguments and proofs to explore the truth of conjectures and justify conclusions.	Algebra II	SPI 3103.5.7 Determine/recognize when the correlation coefficient measures goodness of fit.	SPI 3103.5.7
	Geometry	SPI 3108.2.1 Analyze, apply, or interpret the relationships between basic number concepts and geometry (e.g. rounding and pattern identification in measurement, the relationship of pi to other rational and irrational numbers).	SPI 3108.2.1
	Geometry	SPI 3108.4.1 Differentiate between Euclidean and non-Euclidean geometries.	SPI 3108.4.1
	Geometry	SPI 3108.4.4 Analyze different types and formats of proofs.	SPI 3108.4.4
Representation Use and translate among representations including verbal, numerical, symbolic and graphical to communicate mathematical ideas and solve problems.	Algebra I	SPI 3102.1.2 Write an equation symbolically to express a contextual problem.	SPI 3102.1.2
	Algebra I	SPI 3102.1.4 Translate between representations of functions that depict real-world situations.	SPI 3102.1.4
	Algebra I	SPI 3102.2.1 Operate (add, subtract, multiply, divide, simplify, powers) with radicals and radical expressions including radicands involving rational numbers and algebraic expressions.	SPI 3102.2.1
	Algebra I	SPI 3102.3.1 Express a generalization of a pattern in various representations including algebraic and function notation.	SPI 3102.3.1
	Algebra I	SPI 3102.3.2 Operate with polynomials and simplify results.	SPI 3102.3.2
	Algebra I	SPI 3102.3.8 Determine the equation of a line and/or graph a linear equation.	SPI 3102.3.8
	Algebra I	SPI 3102.4.4 Convert rates and measurements.	SPI 3102.4.4
	Algebra II	SPI 3103.1.1 Move flexibly between multiple representations (contextual, physical, written, verbal, iconic/pictorial, graphical, tabular, and symbolic) of non-linear and transcendental functions to solve problems, to model mathematical ideas, and to communicate solution strategies.	SPI 3103.1.1
	Algebra II	SPI 3103.3.10 Identify and/or graph a variety of functions and their transformations.	SPI 3103.3.10
	Algebra II	SPI 3103.3.11 Graph conic sections (circles, parabolas, ellipses and hyperbolas) and understand the relationship between the standard form and the key characteristics of the graph.	SPI 3103.3.11
Algebra II	SPI 3103.3.9 Graph the solution set of two or three linear or quadratic inequalities.	SPI 3103.3.9	

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<p>Representation</p> <p>Use and translate among representations including verbal, numerical, symbolic and graphical to communicate mathematical ideas and solve problems.</p>	Geometry	SPI 3108.4.10 Identify, describe, and/or apply transformations on two and three dimensional geometric shapes.	SPI 3108.4.10

PSAT/NMSQT Skills Insight™ Alignment to State Standards

Executive Summary, July 2010

Purpose

PSAT/NMSQT *Skills Insight*™ is a free online tool designed to help students and educators gain a better understanding of how PSAT/NMSQT® scores relate to specific academic skills. It provides a description of the academic skills that are typical of students scoring at each score band, suggestions for improvement, and practice test questions. Learn more by visiting www.collegeboard.com/psatskills.

The information provided by PSAT/NMSQT *Skills Insight* is organized by skill category. There are five skill categories for the critical reading section, nine for the mathematics section (4 content skill categories; 5 process skill categories), and 5 for the writing skills section. This report shows the alignment between state standards in English Language Arts and Mathematics and the content and skills measured by the PSAT/NMSQT.

Using Alignment Results with PSAT/NMSQT Reports

Schools and districts that administer the PSAT/NMSQT have access to the *Summary of Answers and Skills* (SOAS) report¹. SOAS reports summarize performance on test sections, skill categories, and individual test questions, and compare local results to the state or nation. Using SOAS and the alignment information provided in this report, schools and districts can develop remediation strategies to help students improve their college readiness skills, future SAT scores, and performance on state assessments.

Mathematics: Alignment Approach and Findings

- There are nine Skills Categories in Mathematics, representing both content and process skills: *Number and Operations; Algebra and Functions; Geometry and Measurement; Data, Statistics and Probability; Problem Solving; Representation; Reasoning; Connections and Communication*.
- Only standards for grades 9-12 were considered for these alignments. Within grades 9-12, the areas with the greatest concentration of alignments are the Number and Operations, Algebra and Geometry strands of the state standards. In most cases, Precalculus and Trigonometry were excluded from the alignment study.
- The organization and hierarchy of standards varies on a state-by-state basis. During the alignment process, the College Board aligned the PSAT/NMSQT skills to the most specific level of the state's standards.
- States often integrate process and content standards. In such cases, the state standard received an alignment to both a process skill category and a content skill category.
- Generally, there is strong correspondence between the PSAT/NMSQT Skills Categories in Mathematics and state standards. Coverage of the Skills Categories across a state standards document is dependent upon the specific state standards and on the degree of specificity of language employed within the standards.
- The PSAT/NMSQT is administered to students in grades 10 and 11; consequently, the strongest areas of alignment are in the content categories of *Number and Operations, Algebra and Functions* and *Geometry and Measurement* and in the process categories of *Problem Solving, Reasoning* and *Representations*. Considering the design and purpose of the PSAT/NMSQT, extensive alignments in upper levels of high school mathematics standards, including Trigonometry, are not intended or expected.

¹ Using the access code printed on the PSAT/NMSQT *Roster of Student Scores and Plans*, SOAS reports can be downloaded from www.collegeboard.com/reports beginning in the first week of January.

- The College Board content specialists who conducted the alignments have a deep understanding of the PSAT/NMSQT test specifications. Therefore, although multiple Skills Categories might link to a particular standard, these alignments display only the strongest and most appropriate matches.

English Language Arts: Alignment Approach and Findings

- Reading and Writing each have five PSAT/NMSQT Skills Categories. In Reading, the categories are *Determining the Meaning of Words*, *Author’s Craft*, *Reasoning and Inferencing*, *Organization and Ideas* and *Understanding Literary Elements*. In Writing, the categories are *Manage Word Choice and Grammatical Relationships Between Words*, *Manage Grammatical Structures Used to Modify or Compare*, *Manage Phrases and Clauses in a Sentence*; *Recognize Correctly Formed Sentences* and *Manage Order and Relationships of Sentences and Paragraphs*.
- The PSAT/NMSQT is administered to students in grades 10 and 11, and the College Board targeted the English Language Arts alignments at these specific grade levels. In states where the standards are organized by grade band (grades 9-10, 11-12) or by one high school band (grades 9-12), the College Board aligned to all high school grade levels.
- Given the purpose and design of the PSAT/NMSQT, the English Language Arts alignment is focused on the areas of reading and writing and does not include state standards in speaking, listening, or media literacy. Additionally, these alignments excluded genre-specific state standards (such as those related to American, British, or World literature), although the essential PSAT/NMSQT skills in Reading can be used to support instruction in literature.
- The organization and hierarchy of standards varies on a state-by-state basis. During the alignment process, the College Board aligned the PSAT/NMSQT skills to the most specific level of the state’s standards. Coverage of the Skills Categories across a state standards document is dependent upon the specific state standards and on the degree of specificity of language employed within the standards.
- In Writing, generally there is strong correspondence between the PSAT/NMSQT Skills Categories and state standards that focus on grammar, usage, language conventions, and the role of editing and revising in writing.
- In Reading, there is strong correspondence between the PSAT/NMSQT Skills Categories and state standards in the essential areas of vocabulary development (determine the meaning of unfamiliar words or of words with multiple meanings by understanding context and by analyzing roots, prefixes, and suffixes) and reading comprehension (determine the main idea and supporting details; understand the organization of passages; analyze the various elements of an author’s craft, including purpose, perspective, word choice, and use of rhetorical and literary devices and understand literary elements such as plot, characterization, and setting).

Summary

In summary, the PSAT/NMSQT Skills Categories correspond well to state standards. Educators can use these alignments to connect the PSAT/NMSQT to their local curricula and state standards to monitor student learning and to build a coherent instructional plan for their students.