PSAT/NMSQT Skill Category and Description of Skills	Oklahoma Math: Priority Academic Student Skills 2007 & 2009		
	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	a. Translate word phrases and sentences into expressions and equations and vice versa.	AI.1.1.a
	Algebra I	b. Solve literal equations involving several variables for one variable in terms of the others.	AI.1.1.b
	Algebra I	c. Use the formulas from measurable attributes of geometric models (perimeter, circumference, area and volume), science, and statistics to solve problems within an algebraic context.	AI.1.1.c
	Algebra I	d. Solve two-step and three-step problems using concepts such as rules of exponents, rate, distance, ratio and proportion, and percent.	AI.1.1.d
	Algebra I	a. Simplify and evaluate linear, absolute value, rational and radical expressions.	AI.1.2.a
	Algebra I	b. Simplify polynomials by adding, subtracting or multiplying.	AI.1.2.b
	Algebra I	c. Factor polynomial expressions.	AI.1.2.c
	Algebra I	a. Distinguish between linear and nonlinear data.	AI.2.1.a
	Algebra I	b. Distinguish between relations and functions.	AI.2.1.b
	Algebra I	c. Identify dependent and independent variables, domain and range.	AI.2.1.c
	Algebra I	d. Evaluate a function using tables, equations or graphs.	AI.2.1.d
	Algebra I	a. Solve linear equations by graphing or using properties of equality.	AI.2.2.a
	Algebra I	b. Recognize the parent graph of the functions y = k, y = x, y = |x|, and predict the effects of transformations on the parent graph.	AI.2.2.b
	Algebra I	I. Calculate the slope of a line using a graph, an equation, two points or a set of data points.	AI.2.2.c.I
	Algebra I	II. Use the slope to differentiate between lines that are parallel, perpendicular, horizontal, or vertical.	AI.2.2.c.II
	Algebra I	III. Interpret the slope and intercepts within the context of everyday life (e.g., telephone charges based on base rate [y-intercept] plus rate per minute [slope]).	AI.2.2.c.III

PSAT/NMSQT Skill Category and Description of Skills	Oklahoma Math: Priority Academic Student Skills 2007 & 2009		
	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	d. Develop the equation of a line and graph linear relationships given the following: slope and y-intercept, slope and one point on the line, two points on the line, x-intercept and y-intercept, a set of data points.	AI.2.2.d
	Algebra I	e. Match appropriate equations to a graph, table, or situation and vice versa.	AI.2.2.e
	Algebra I	a. Solve linear inequalities by graphing or using properties of inequalities.	AI.2.3.a
	Algebra I	b. Match inequalities (with 1 or 2 variables) to a graph, table, or situation and vice versa.	AI.2.3.b
	Algebra I	4. Solve a system of linear equations by graphing, substitution or elimination.	AI.2.4
	Algebra I	a. Match exponential and quadratic functions to a table, graph or situation and vice versa.	AI.2.5.a
	Algebra I	b. Solve quadratic equations by graphing, factoring, or using the quadratic formula.	AI.2.5.b
	Algebra II	a. Convert expressions from radical notations to rational exponents and vice versa.	AII.1.1.a
	Algebra II	b. Add, subtract, multiply, divide, and simplify radical expressions and expressions containing rational exponents.	AII.1.1.b
	Algebra II	a. Divide polynomial expressions by lower degree polynomials.	AII.1.2.a
	Algebra II	b. Add, subtract, multiply, divide, and simplify rational expressions, including complex fractions.	AII.1.2.b
	Algebra II	a. Recognize the parent graphs of polynomial, exponential, and logarithmic functions and predict the effects of transformations on the parent graphs, using various methods and tools which may include graphing calculators.	AII.2.1.a
	Algebra II	b. Add, subtract, multiply, and divide functions using function notation.	AII.2.1.b
	Algebra II	c. Combine functions by composition.	AII.2.1.c
	Algebra II	d. Use algebraic, interval, and set notations to specify the domain and range of functions of various types.	AII.2.1.d
	Algebra II	e. Find and graph the inverse of a function, if it exists.	AII.2.1.e

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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	a. Model a situation that can be described by a system of equations or inequalities and use the model to answer questions about the situation.	AII.2.2.a
	Algebra II	b. Solve systems of linear equations and inequalities using various methods and tools which may include substitution, elimination, matrices, graphing, and graphing calculators.	AII.2.2.b
	Algebra II	c. Use either one quadratic equation and one linear equation or two quadratic equations to solve problems.	AII.2.2.c
	Algebra II	a. Solve quadratic equations by graphing, factoring, completing the square and quadratic formula.	AII.2.3.a
	Algebra II	b. Graph a quadratic function and identify the x- and y-intercepts and maximum or minimum value, using various methods and tools which may include a graphing calculator.	AII.2.3.b
	Algebra II	c. Model a situation that can be described by a quadratic function and use the model to answer questions about the situation.	AII.2.3.c
	Algebra II	4. Identify, graph, and write the equations of the conic sections (circle, ellipse, parabola, and hyperbola).	AII.2.4
	Algebra II	a. Graph exponential and logarithmic functions.	AII.2.5.a
	Algebra II	b. Apply the inverse relationship between exponential and logarithmic functions to convert from one form to another.	AII.2.5.b
	Algebra II	c. Model a situation that can be described by an exponential or logarithmic function and use the model to answer questions about the situation.	AII.2.5.c
	Algebra II	a. Solve polynomial equations using various methods and tools which may include factoring and synthetic division.	AII.2.6.a
	Algebra II	b. Sketch the graph of a polynomial function.	AII.2.6.b
	Algebra II	c. Given the graph of a polynomial function, identify the x- and y-intercepts, relative maximums and relative minimums, using various methods and tools which may include a graphing calculator.	AII.2.6.c
	Algebra II	d. Model a situation that can be described by a polynomial function and use the model to answer questions about the situation.	AII.2.6.d

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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	a. Solve rational equations.	AII.2.7.a
	Algebra II	b. Sketch the graph of a rational function.	AII.2.7.b
	Algebra II	c. Given the graph of a rational function, identify the x- and y-intercepts, vertical asymptotes, using various methods and tools which may include a graphing calculator.	AII.2.7.c
	Algebra II	d. Model a situation that can be described by a rational function and use the model to answer questions about the situation.	AII.2.7.d
Communication Express mathematical ideas precisely and communicate them coherently and clearly in the language and notation of mathematics.	Algebra I	a. Distinguish between linear and nonlinear data.	AI.2.1.a
	Algebra I	b. Distinguish between relations and functions.	AI.2.1.b
	Algebra I	c. Identify dependent and independent variables, domain and range.	AI.2.1.c
	Algebra I	II. Use the slope to differentiate between lines that are parallel, perpendicular, horizontal, or vertical.	AI.2.2.c.II
	Algebra I	2. Collect data involving two variables and display on a scatter plot; interpret results using a linear model/equation and identify whether the model/equation is a line best fit for the data.	AI.3.2
	Algebra II	a. Recognize the parent graphs of polynomial, exponential, and logarithmic functions and predict the effects of transformations on the parent graphs, using various methods and tools which may include graphing calculators.	AII.2.1.a
	Algebra II	c. Given the graph of a polynomial function, identify the x- and y-intercepts, relative maximums and relative minimums, using various methods and tools which may include a graphing calculator.	AII.2.6.c
	Algebra II	c. Given the graph of a rational function, identify the x- and y-intercepts, vertical asymptotes, using various methods and tools which may include a graphing calculator.	AII.2.7.c
	Algebra II	b. Identify whether the model/equation is a curve of best fit for the data, using various methods and tools which may include a graphing calculator.	AII.3.1.b
	Geometry	a. Identify, describe, and analyze polygons (for example, convex, concave, regular, pentagonal, hexagonal, n-gonal).	G.2.3.a

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	Course/ Level	Standard	Standard ID
Communication Express mathematical ideas precisely and communicate them coherently and clearly in the language and notation of mathematics.	Geometry	1. Use the Pythagorean Theorem and its converse to find missing side lengths and to determine acute, right, and obtuse triangles, and verify using algebraic and deductive proofs.	G.3.1
	Process Standards (High School)	1. Use mathematical language and symbols to read and write mathematics and to converse with others.	2.1
	Process Standards (High School)	2. Demonstrate mathematical ideas orally and in writing.	2.2
	Process Standards (High School)	3. Analyze mathematical definitions and discover generalizations through investigations.	2.3
Connections Connect ideas from different areas of mathematics (particularly geometry and algebra) to state or solve abstract or applied problems.	Algebra I	III. Interpret the slope and intercepts within the context of everyday life (e.g., telephone charges based on base rate [y-intercept] plus rate per minute [slope]).	AI.2.2.c.III
	Algebra I	e. Match appropriate equations to a graph, table, or situation and vice versa.	AI.2.2.e
	Algebra I	b. Match inequalities (with 1 or 2 variables) to a graph, table, or situation and vice versa.	AI.2.3.b
	Algebra I	a. Match exponential and quadratic functions to a table, graph or situation and vice versa.	AI.2.5.a
	Process Standards (High School)	1. Link mathematical ideas to the real world (e.g., statistics helps qualify the confidence we can have when drawing conclusions based on a sample).	4.1
	Process Standards (High School)	2. Apply mathematical problem-solving skills to other disciplines.	4.2
	Process Standards (High School)	3. Use mathematics to solve problems encountered in daily life.	4.3
	Process Standards (High School)	4. Relate one area of mathematics to another and to the integrated whole (e.g., connect equivalent representations to corresponding problem situations or mathematical concepts).	4.4

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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 I	a. Translate from one representation of data to another and understand that the data can be represented using a variety of tables, graphs, or symbols and that different modes of representation often convey different messages.	AI.3.1.a
	Algebra I	b. Make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts.	AI.3.1.b
	Algebra I	c. Solve two-step and three-step problems using concepts such as probability and measures of central tendency.	AI.3.1.c
	Algebra I	2. Collect data involving two variables and display on a scatter plot; interpret results using a linear model/equation and identify whether the model/equation is a line best fit for the data.	AI.3.2
	Algebra II	a. Interpret data on a scatter plot using a linear, exponential, or quadratic model/equation.	AII.3.1.a
	Algebra II	b. Identify whether the model/equation is a curve of best fit for the data, using various methods and tools which may include a graphing calculator.	AII.3.1.b
	Algebra II	a. Analyze and synthesize data from a sample using appropriate measures of central tendency (mean, median, mode, weighted average).	AII.3.2.a
	Algebra II	b. Analyze and synthesize data from a sample using appropriate measures of variability (range, variance, standard deviation).	AII.3.2.b
	Algebra II	c. Use the characteristics of the Gaussian normal distribution (bell-shaped curve) to solve problems.	AII.3.2.c
	Algebra II	d. Identify how given outliers affect representations of data.	AII.3.2.d
	Algebra II	3. Identify and use arithmetic and geometric sequences and series to solve problems.	AII.3.3
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	1. Identify and use logical reasoning skills (inductive and deductive) to make and test conjectures, formulate counter examples, and follow logical arguments.	G.1.1
	Geometry	2. State, use, and examine the validity of the converse, inverse, and contrapositive of "if-then" statements.	G.1.2
	Geometry	3. Compare the properties of Euclidean geometry to non-Euclidean geometries (for example, elliptical geometry, as shown on the surface of a globe, does not uphold the parallel postulate).	G.1.3

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	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	1. Use geometric tools (for example, protractor, compass, straight edge) to construct a variety of figures.	G.2.1
	Geometry	a. Use the angle relationships formed by parallel lines cut by a transversal to solve problems.	G.2.2.a
	Geometry	b. Use the angle relationships formed by two lines cut by a transversal to determine if the two lines are parallel and verify, using algebraic and deductive proofs.	G.2.2.b
	Geometry	c. Use relationships between pairs of angles (for example, adjacent, complementary, vertical) to solve problems.	G.2.2.c
	Geometry	a. Identify, describe, and analyze polygons (for example, convex, concave, regular, pentagonal, hexagonal, n-gonal).	G.2.3.a
	Geometry	b. Apply the interior and exterior angle sum of convex polygons to solve problems, and verify using algebraic and deductive proofs.	G.2.3.b
	Geometry	c. Develop and apply the properties of quadrilaterals to solve problems (for example, rectangles, parallelograms, rhombi, trapezoids, kites).	G.2.3.c
	Geometry	d. Use properties of 2-dimensional figures and side length, perimeter or circumference, and area to determine unknown values and correctly identify the appropriate unit of measure of each.	G.2.3.d
	Geometry	a. Determine and verify the relationships of similarity of triangles, using algebraic and deductive proofs.	G.2.4.a
	Geometry	b. Use ratios of similar 2-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference, and area.	G.2.4.b
	Geometry	a. Determine and verify the relationships of congruency of triangles, using algebraic and deductive proofs.	G.2.5.a
	Geometry	b. Use the relationships of congruency of 2-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference, and area.	G.2.5.b
	Geometry	a. Find angle measures and arc measures related to circles.	G.2.6.a

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	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	b. Find angle measures and segment lengths using the relationships among radii, chords, secants, and tangents of a circle.	G.2.6.b
	Geometry	1. Use the Pythagorean Theorem and its converse to find missing side lengths and to determine acute, right, and obtuse triangles, and verify using algebraic and deductive proofs.	G.3.1
	Geometry	2. Apply the 45-45-90 and 30-60-90 right triangle relationships to solve problems, and verify using algebraic and deductive proofs.	G.3.2
	Geometry	a. Identify, describe, and analyze polyhedra (for example, regular, decahedral).	G.4.1.a
	Geometry	b. Use properties of 3-dimensional figures; side lengths, perimeter or circumference, and area of a face; and volume, lateral area, and surface area to determine unknown values and correctly identify the appropriate unit of measure of each.	G.4.1.b
	Geometry	2. Similarity: Use ratios of similar 3-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference of a face, area of a face, and volume.	G.4.2
	Geometry	3. Create a model of a 3-dimensional figure from a 2-dimensional drawing and make a 2-dimensional representation of a 3-dimensional object (for example, nets, blueprints, perspective drawings).	G.4.3
	Geometry	1. Find the distance between two points; the midpoint of a segment; and calculate the slopes of parallel, perpendicular, horizontal, and vertical lines.	G.5.1
	Geometry	a. Given a set of points determine the type of figure formed based on its properties.	G.5.2.a
	Geometry	b. Use transformations (reflection, rotation, translation) on geometric figures to solve problems within coordinate geometry.	G.5.2.b
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	b. Solve literal equations involving several variables for one variable in terms of the others.	AI.1.1.b
	Algebra I	c. Use the formulas from measurable attributes of geometric models (perimeter, circumference, area and volume), science, and statistics to solve problems within an algebraic context.	AI.1.1.c

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	Course/ Level	Standard	Standard ID
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	d. Solve two-step and three-step problems using concepts such as rules of exponents, rate, distance, ratio and proportion, and percent.	AI.1.1.d
	Algebra I	d. Evaluate a function using tables, equations or graphs.	AI.2.1.d
	Algebra I	a. Solve linear equations by graphing or using properties of equality.	AI.2.2.a
	Algebra I	l. Calculate the slope of a line using a graph, an equation, two points or a set of data points.	AI.2.2.c.l
	Algebra I	a. Solve linear inequalities by graphing or using properties of inequalities.	AI.2.3.a
	Algebra I	4. Solve a system of linear equations by graphing, substitution or elimination.	AI.2.4
	Algebra I	b. Solve quadratic equations by graphing, factoring, or using the quadratic formula.	AI.2.5.b
	Algebra I	c. Solve two-step and three-step problems using concepts such as probability and measures of central tendency.	AI.3.1.c
	Algebra II	b. Add, subtract, multiply, divide, and simplify radical expressions and expressions containing rational exponents.	AII.1.1.b
	Algebra II	a. Divide polynomial expressions by lower degree polynomials.	AII.1.2.a
	Algebra II	b. Add, subtract, multiply, divide, and simplify rational expressions, including complex fractions.	AII.1.2.b
	Algebra II	b. Add, subtract, multiply, and divide functions using function notation.	AII.2.1.b
	Algebra II	c. Combine functions by composition.	AII.2.1.c
	Algebra II	e. Find and graph the inverse of a function, if it exists.	AII.2.1.e
	Algebra II	b. Solve systems of linear equations and inequalities using various methods and tools which may include substitution, elimination, matrices, graphing, and graphing calculators.	AII.2.2.b
	Algebra II	c. Use either one quadratic equation and one linear equation or two quadratic equations to solve problems.	AII.2.2.c

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	Course/ Level	Standard	Standard ID
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	a. Solve quadratic equations by graphing, factoring, completing the square and quadratic formula.	AII.2.3.a
	Algebra II	a. Solve polynomial equations using various methods and tools which may include factoring and synthetic division.	AII.2.6.a
	Algebra II	a. Solve rational equations.	AII.2.7.a
	Algebra II	c. Use the characteristics of the Gaussian normal distribution (bell-shaped curve) to solve problems.	AII.3.2.c
	Algebra II	3. Identify and use arithmetic and geometric sequences and series to solve problems.	AII.3.3
	Geometry	a. Use the angle relationships formed by parallel lines cut by a transversal to solve problems.	G.2.2.a
	Geometry	c. Use relationships between pairs of angles (for example, adjacent, complementary, vertical) to solve problems.	G.2.2.c
	Geometry	c. Develop and apply the properties of quadrilaterals to solve problems (for example, rectangles, parallelograms, rhombi, trapezoids, kites).	G.2.3.c
	Geometry	d. Use properties of 2-dimensional figures and side length, perimeter or circumference, and area to determine unknown values and correctly identify the appropriate unit of measure of each.	G.2.3.d
	Geometry	b. Use ratios of similar 2-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference, and area.	G.2.4.b
	Geometry	b. Use the relationships of congruency of 2-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference, and area.	G.2.5.b
	Geometry	a. Find angle measures and arc measures related to circles.	G.2.6.a
	Geometry	b. Find angle measures and segment lengths using the relationships among radii, chords, secants, and tangents of a circle.	G.2.6.b

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	Course/ Level	Standard	Standard ID
Problem Solving Solve abstract and practical problems, applying and adapting a variety of strategies. Monitor progress and evaluate answers in terms of questions asked.	Geometry	b. Use properties of 3-dimensional figures; side lengths, perimeter or circumference, and area of a face; and volume, lateral area, and surface area to determine unknown values and correctly identify the appropriate unit of measure of each.	G.4.1.b
	Geometry	2. Similarity: Use ratios of similar 3-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference of a face, area of a face, and volume.	G.4.2
	Geometry	1. Find the distance between two points; the midpoint of a segment; and calculate the slopes of parallel, perpendicular, horizontal, and vertical lines.	G.5.1
	Geometry	a. Given a set of points determine the type of figure formed based on its properties.	G.5.2.a
	Process Standards (High School)	1. Apply a wide variety of problem-solving strategies (identify a pattern, use equivalent representations) to solve problems from within and outside mathematics.	1.1
	Process Standards (High School)	2. Identify the problem from a described situation, determine the necessary data and apply appropriate problem-solving strategies.	1.2
	Geometry	b. Use transformations (reflection, rotation, translation) on geometric figures to solve problems within coordinate geometry.	G.5.2.b
Reasoning Develop and use mathematical arguments and proofs to explore the truth of conjectures and justify conclusions.	Algebra I	b. Recognize the parent graph of the functions y = k, y = x, y = |x|, and predict the effects of transformations on the parent graph.	AI.2.2.b
	Algebra I	b. Make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts.	AI.3.1.b
	Algebra II	a. Interpret data on a scatter plot using a linear, exponential, or quadratic model/equation.	AII.3.1.a
	Algebra II	a. Analyze and synthesize data from a sample using appropriate measures of central tendency (mean, median, mode, weighted average).	AII.3.2.a
	Algebra II	b. Analyze and synthesize data from a sample using appropriate measures of variability (range, variance, standard deviation).	AII.3.2.b
	Algebra II	d. Identify how given outliers affect representations of data.	AII.3.2.d

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	Course/ Level	Standard	Standard ID
Reasoning Develop and use mathematical arguments and proofs to explore the truth of conjectures and justify conclusions.	Geometry	1. Identify and use logical reasoning skills (inductive and deductive) to make and test conjectures, formulate counter examples, and follow logical arguments.	G.1.1
	Geometry	2. State, use, and examine the validity of the converse, inverse, and contrapositive of "if-then" statements.	G.1.2
	Geometry	3. Compare the properties of Euclidean geometry to non-Euclidean geometries (for example, elliptical geometry, as shown on the surface of a globe, does not uphold the parallel postulate).	G.1.3
	Geometry	b. Use the angle relationships formed by two lines cut by a transversal to determine if the two lines are parallel and verify, using algebraic and deductive proofs.	G.2.2.b
	Geometry	b. Apply the interior and exterior angle sum of convex polygons to solve problems, and verify using algebraic and deductive proofs.	G.2.3.b
	Geometry	a. Determine and verify the relationships of similarity of triangles, using algebraic and deductive proofs.	G.2.4.a
	Geometry	a. Determine and verify the relationships of congruency of triangles, using algebraic and deductive proofs.	G.2.5.a
	Geometry	2. Apply the 45-45-90 and 30-60-90 right triangle relationships to solve problems, and verify using algebraic and deductive proofs.	G.3.2
	Geometry	a. Identify, describe, and analyze polyhedra (for example, regular, decahedral).	G.4.1.a
	Process Standards (High School)	1. Use various types of logical reasoning in mathematical contexts and real-world situations.	3.1
	Process Standards (High School)	2. Prepare and evaluate suppositions and arguments.	3.2
	Process Standards (High School)	3. Verify conclusions, identify counterexamples, test conjectures, and justify solutions to mathematical problems.	3.3
	Process Standards (High School)	4. Justify mathematical statements through proofs.	3.4

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	Course/ Level	Standard	Standard ID
Representation Use and translate among representations including verbal, numerical, symbolic and graphical to communicate mathematical ideas and solve problems. .	Algebra I	a. Translate word phrases and sentences into expressions and equations and vice versa.	AI.1.1.a
	Algebra I	a. Simplify and evaluate linear, absolute value, rational and radical expressions.	AI.1.2.a
	Algebra I	b. Simplify polynomials by adding, subtracting or multiplying.	AI.1.2.b
	Algebra I	c. Factor polynomial expressions.	AI.1.2.c
	Algebra I	d. Develop the equation of a line and graph linear relationships given the following: slope and y-intercept, slope and one point on the line, two points on the line, x-intercept and y-intercept, a set of data points.	AI.2.2.d
	Algebra I	a. Translate from one representation of data to another and understand that the data can be represented using a variety of tables, graphs, or symbols and that different modes of representation often convey different messages.	AI.3.1.a
	Algebra II	a. Convert expressions from radical notations to rational exponents and vice versa.	AII.1.1.a
	Algebra II	d. Use algebraic, interval, and set notations to specify the domain and range of functions of various types.	AII.2.1.d
	Algebra II	a. Model a situation that can be described by a system of equations or inequalities and use the model to answer questions about the situation.	AII.2.2.a
	Algebra II	b. Graph a quadratic function and identify the x- and y-intercepts and maximum or minimum value, using various methods and tools which may include a graphing calculator.	AII.2.3.b
	Algebra II	c. Model a situation that can be described by a quadratic function and use the model to answer questions about the situation.	AII.2.3.c
	Algebra II	4. Identify, graph, and write the equations of the conic sections (circle, ellipse, parabola, and hyperbola).	AII.2.4
	Algebra II	a. Graph exponential and logarithmic functions.	AII.2.5.a
	Algebra II	b. Apply the inverse relationship between exponential and logarithmic functions to convert from one form to another.	AII.2.5.b

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	Course/ Level	Standard	Standard ID
Representation Use and translate among representations including verbal, numerical, symbolic and graphical to communicate mathematical ideas and solve problems	Algebra II	c. Model a situation that can be described by an exponential or logarithmic function and use the model to answer questions about the situation.	AII.2.5.c
	Algebra II	b. Sketch the graph of a polynomial function.	AII.2.6.b
	Algebra II	d. Model a situation that can be described by a polynomial function and use the model to answer questions about the situation.	AII.2.6.d
	Algebra II	b. Sketch the graph of a rational function.	AII.2.7.b
	Algebra II	d. Model a situation that can be described by a rational function and use the model to answer questions about the situation.	AII.2.7.d
	Geometry	1. Use geometric tools (for example, protractor, compass, straight edge) to construct a variety of figures.	G.2.1
.	Geometry	3. Create a model of a 3-dimensional figure from a 2-dimensional drawing and make a 2-dimensional representation of a 3-dimensional object (for example, nets, blueprints, perspective drawings).	G.4.3
	Process Standards (High School)	1. Use algebraic, graphic, and numeric representations to model and interpret mathematical and real world situations.	5.1
	Process Standards (High School)	2. Use a variety of mathematical representations as tools for organizing, recording, and communicating mathematical ideas (e.g., mathematical models, tables, graphs, spreadsheets).	5.2
	Process Standards (High School)	3. Develop a variety of mathematical representations that can be used flexibly and appropriately.	5.3

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) report[1]. 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.