STAAR
STANDARDS

STAAR
STANDARDS
ALGEBRA I

Mathematical Process Standards						
A.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.						
Tools to Know			**Ways to Show**			
A.1(A)	**A.1(B)**	**A.1(C)**	**A.1(D)**	**A.1(E)**	**A.1(F)**	**A.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

Knowledge and Skills Statements	
A.2	**Linear functions, equations, and inequalities.** The student applies the mathematical process standards when using properties of linear functions to write and represent in multiple ways, with and without technology, linear equations, inequalities, and systems of equations.
A.3	**Linear functions, equations, and inequalities.** The student applies the mathematical process standards when using graphs of linear functions, key features, and related transformations to represent in multiple ways and solve, with and without technology, equations, inequalities, and systems of equations.
A.4	**Linear functions, equations, and inequalities.** The student applies the mathematical process standards to formulate statistical relationships and evaluate their reasonableness based on real-world data.
A.5	**Linear functions, equations, and inequalities.** The student applies the mathematical process standards to solve, with and without technology, linear equations and evaluate the reasonableness of their solutions.
A.6	**Quadratic functions and equations.** The student applies the mathematical process standards when using properties of quadratic functions to write and represent in multiple ways, with and without technology, quadratic equations.
A.7	**Quadratic functions and equations.** The student applies the mathematical process standards when using graphs of quadratic functions and their related transformations to represent in multiple ways and determine, with and without technology, the solutions to equations.
A.8	**Quadratic functions and equations.** The student applies the mathematical process standards to solve, with and without technology, quadratic equations and evaluate the reasonableness of their solutions. The student formulates statistical relationships and evaluates their reasonableness based on real-world data.
A.9	**Exponential functions and equations.** The student applies the mathematical process standards when using properties of exponential functions and their related transformations to write, graph, and represent in multiple ways exponential equations and evaluate, with and without technology, the reasonableness of their solutions. The student formulates statistical relationships and evaluates their reasonableness based on real-world data.
A.10	**Number and algebraic methods.** The student applies the mathematical process standards and algebraic methods to rewrite in equivalent forms and perform operations on polynomial expressions.
A.11	**Number and algebraic methods.** The student applies the mathematical process standards and algebraic methods to rewrite algebraic expressions into equivalent forms.
A.12	**Number and algebraic methods.** The student applies the mathematical process standards and algebraic methods to write, solve, analyze, and evaluate equations, relations, and functions.

Rptg Cat	STAAR	Readiness Standards	Supporting Standards
1 Number and Algebraic Methods	11	A.10(E) factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$, including perfect square trinomials of degree two A.11(B) simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents	A.10(A) add and subtract polynomials of degree one and degree two A.10(B) multiply polynomials of degree one and degree two A.10(C) determine the quotient of a polynomial of degree one and polynomial of degree two when divided by a polynomial of degree one and polynomial of degree two when the degree of the divisor does not exceed the degree of the dividend A.10(D) rewrite polynomial expressions of degree one and degree two in equivalent forms using the distributive property A.10(F) decide if a binomial can be written as the difference of two squares and, if possible, use the structure of a difference of two squares to rewrite the binomial A.11(A) simplify numerical radical expressions involving square roots A.12(A) decide whether relations represented verbally, tabularly, graphically, and symbolically define a function A.12(B) evaluate functions, expressed in function notation, given one or more elements in their domains A.12(C) identify terms of arithmetic and geometric sequences when the sequences are given in function form using recursive processes A.12(D) write a formula for the n^{th} term of arithmetic and geometric sequences, given the value of several of their terms A.12(E) solve mathematic and scientific formulas, and other literal equations, for a specified variable
2 Describing and Graphing Linear Functions, Equations, and Inequalities	12	A.3(B) calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems A.3(C) graph linear functions on the coordinate plane and identify key features, including x-intercept, y-intercept, zeros, and slope, in mathematical and real-world problems A.3(D) graph the solution set of linear inequalities in two variables on the coordinate plane	A.3(A) determine the slope of a line given a table of values, a graph, two points on the line, and an equation written in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$ A.3(E) determine the effects on the graph of the parent function $f(x) = x$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values o f a, b, c, and d A.3(F) graph systems of two linear equations in two variables on the coordinate plane and determine the solutions if they exist A.3(G) estimate graphically the solutions to systems of two linear equations with two variables in real-world problems A.3(H) graph the solution set of systems of two linear inequalities in two variables on the coordinate plane A.4(A) calculate, using technology, the correlation coefficient between two quantitative variables and interpret this quantity as a measure of the strength of the linear association A.4(B) compare and contrast association and causation in real-world problems A.4(C) write, with and without technology, linear functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems

Rptg Cat	STAAR	Readiness Standards	Supporting Standards
3 Writing and Solving Linear Functions, Equations, and Inequalities	14	A.2(A) determine the domain and range of a linear function in mathematical problems; determine reasonable domain and range values for real-world situations, both continuous and discrete; and represent domain and range using inequalities A.2(C) write linear equations in two variables given a table of values, a graph, and a verbal description A.2(I) write systems of two linear equations given a table of values, a graph, and a verbal description A.5(A) solve linear equations in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides A.5(C) solve systems of two linear equations with two variables for mathematical and real-world problems	A.2(B) write linear equations in two variables in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$, given one point and the slope and given two points A.2(D) write and solve equations involving direct variation A.2(E) write the equation of a line that contains a given point and is parallel to a given line A.2(F) write the equation of a line that contains a given point and is perpendicular to a given line A.2(G) write an equation of a line that is parallel or perpendicular to the x- or y-axis and determine whether the slope of the line is zero or undefined A.2(H) write linear inequalities in two variables given a table of values, a graph, and a verbal description A.5(B) solve linear inequalities in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides
4 Quadratic Functions and Equations	11	A.6(A) determine the domain and range of quadratic functions and represent the domain and range using inequalities A.7(A) graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including x-intercept, y-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry A.7(C) determine the effects on the graph of the parent function $f(x) = x^2$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values o f a, b, c, and d A.8(A) solve quadratic equations having real solutions by factoring, taking square roots, completing the square, and applying the quadratic formula	A.6(B) write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form ($f(x) = a(x - h)^2 + k$), and rewrite the equation from vertex form to standard form ($f(x) = ax^2 + bx + c$) A.6(C) write quadratic functions when given real solutions and graphs of their related equations A.7(B) describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions A.8(B) write, using technology, quadratic functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems
5 Exponential Functions and Equations	6	A.9(C) write exponential functions in the form $f(x) = ab^x$ (where b is a rational number) to describe problems arising from mathematical and real-world situations, including growth and decay A.9(D) graph exponential functions that model growth and decay and identify key features, including y-intercept and asymptote, in mathematical and real-world problems	A.9(A) determine the domain and range of exponential functions of the form $f(x) = ab^x$ and represent the domain and range using inequalities A.9(B) interpret the meaning of the values of a and b in exponential functions of the form $f(x) = ab^x$ in real-world problems A.9(E) write, using technology, exponential functions that provide a reasonable fit to data and make predictions for real-world problems
# Items	54 (5 Griddable)	32-35 questions from Readiness Standards	19-22 questions from Supporting Standards

STAAR
STANDARDS
ALGEBRA II

Mathematical Process Standards

2A.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Tools to Know			Ways to Show			
2A.1(A)	**2A.1(B)**	**2A.1(C)**	**2A.1(D)**	**2A.1(E)**	**2A.1(F)**	**2A.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

Knowledge and Skills Statements

2A.2	**Attributes of functions and their inverses.** The student applies mathematical processes to understand that functions have distinct key attributes and understand the relationship between a function and its inverse.
2A.3	**Systems of equations and inequalities.** The student applies mathematical processes to formulate systems of equations and inequalities, use a variety of methods to solve, and analyze reasonableness of solutions.
2A.4	**Quadratic and square root functions, equations, and inequalities.** The student applies mathematical processes to understand that quadratic and square root functions, equations, and quadratic inequalities can be used to model situations, solve problems, and make predictions.
2A.5	**Exponential and logarithmic functions and equations.** The student applies mathematical processes to understand that exponential and logarithmic functions can be used to model situations and solve problems.
2A.6	**Cubic, cube root, absolute value and rational functions, equations, and inequalities.** The student applies mathematical processes to understand that cubic, cube root, absolute value and rational functions, equations, and inequalities can be used to model situations, solve problems, and make predictions.
2A.7	**Number and algebraic methods.** The student applies mathematical processes to simplify and perform operations on expressions and to solve equations.
2A.8	**Data.** The student applies mathematical processes to analyze data, select appropriate models, write corresponding functions, and make predictions.

Rptg Cat	STAAR	Readiness Standards	Supporting Standards
1 Number and Algebraic Methods	**9**	2A.7(E) determine linear and quadratic factors of a polynomial expression of degree three and of degree four, including factoring the sum and difference of two cubes and factoring by grouping 2A.7(F) determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and of degree two 2A.7(H) solve equations involving rational exponents	2A.7(A) add, subtract, and multiply complex numbers 2A.7(B) add, subtract, and multiply polynomials 2A.7(C) determine the quotient of a polynomial of degree three and of degree four when divided by a polynomial of degree one and of degree two 2A.7(D) determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods 2A.7(G) rewrite radical expressions that contain variables to equivalent forms 2A.7(I) write the domain and range of a function in interval notation, inequalities, and set notation

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TEKS Snapshot – Algebra II

(New TEKS – 2015-16)

Rptg Cat	STAAR	Readiness Standards	Supporting Standards
2 Describing and Graphing Functions and their Inverses	8	2A.2(A) graph the functions $f(x) = \sqrt{x}$, $f(x) = 1/x$, $f(x) = x^3$, $f(x) = \sqrt[3]{x}$, $f(x) = b^x$, $f(x) = \lvert x \rvert$, and $f(x) = \log_b(x)$ where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval 2A.2(C) describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain, which will restrict its range 2A.8(C) predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models	2A.2(B) graph and write the inverse of a function using notation such as $f^{-1}(x)$ 2A.2(D) use the composition of two functions, including the necessary restrictions on the domain, to determine if the functions are inverses of each other 2A.8(A) analyze data to select the appropriate model from among linear, quadratic, and exponential models 2A.8(B) use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data
3 Writing and Solving Systems of Equations and Inequalities	7	2A.3(A) formulate systems of equations, including systems consisting of three linear equations in three variables and systems consisting of two equations, the first linear and the second quadratic 2A.3(B) solve systems of three linear equations in three variables by using Gaussian elimination, technology with matrices, and substitution	2A.3(C) solve, algebraically, systems of two equations in two variables consisting of a linear equation and a quadratic equation 2A.3(D) determine the reasonableness of solutions to systems of a linear equation and a quadratic equation in two variables 2A.3(E) formulate systems of at least two linear inequalities in two variables 2A.3(F) solve systems of two or more linear inequalities in two variables 2A.3(G) determine possible solutions in the solution set of systems of two or more linear inequalities in two variables
4 Quadratic and Square Root Functions, Equations, and Inequalities	10	2A.4(B) write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening 2A.4(C) determine the effect on the graph of $f(x) = \sqrt{x}$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(bx)$, and $f(x - c)$ for specific positive and negative values of a, b, c, and d 2A.4(F) solve quadratic and square root equations	2A.4(A) write the quadratic function given three specified points in the plane 2A.4(D) transform a quadratic function $f(x) = ax^2 + bx + c$ to the form $f(x) = a(x - h)^2 + k$ to identify the different attributes of $f(x)$ 2A.4(E) formulate quadratic and square root equations using technology given a table of data 2A.4(G) identify extraneous solutions of square root equations 2A.4(H) solve quadratic inequalities
5 Exponential and Logarithmic Functions and Equations	6	2A.5(A) determine the effects on the key attributes on the graphs of $f(x) = b^x$ and $f(x) = \log_b(x)$ where b is 2, 10, and e when $f(x)$ is replaced by $af(x)$, $f(x) + d$, and $f(x - c)$ for specific positive and negative real values o f a, c, and d 2A.5(D) solve exponential equations of the form $y = ab^x$ where a is a nonzero real number and b is greater than zero and not equal to one and single logarithmic equations having real solutions	2A.5(B) formulate exponential and logarithmic equations that model real-world situations, including exponential relationships written in recursive notation 2A.5(C) rewrite exponential equations as their corresponding logarithmic equations and logarithmic equations as their corresponding exponential equations 2A.5(E) determine the reasonableness of a solution to a logarithmic equation
6 Other Functions, Equations, and Inequalities	10	2A.6(E) solve absolute value linear equations 2A.6(I) solve rational equations that have real solutions 2A.6(L) formulate and solve equations involving inverse variation	2A.6(A) analyze the effect on the graphs of $f(x) = x^3$ and $f(x) = \sqrt[3]{x}$ when $f(x)$ is replaced by $af(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d 2A.6(B) solve cube root equations that have real roots 2A.6(C) analyze the effect on the graphs of $f(x) = \lvert x \rvert$ when $f(x)$ is replaced by $af(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d 2A.6(D) formulate absolute value linear equations 2A.6(F) solve absolute value linear inequalities 2A.6(G) analyze the effect on the graphs of $f(x) = 1/x$ when $f(x)$ is replaced by $af(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d 2A.6(H) formulate rational equations that model real-world situations 2A.6(J) determine the reasonableness of a solution to a rational equation 2A.6(K) determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation
# Items	50 (5 Griddable)	30-33 questions from Readiness Standards	17-20 questions from Supporting Standards

Source: Texas Education Agency STAAR Resources

REV May 2015

STAAR
STANDARDS
GEOMETRY

Mathematical Process Standards						
G.1 Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.						
Tools to Know			**Ways to Show**			
G.1(A)	**G.1(B)**	**G.1(C)**	**G.1(D)**	**G.1(E)**	**G.1(F)**	**G.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

Knowledge and Skills Statements	
G.2	**Coordinate and transformational geometry.** The student uses the process skills to understand the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures.
G.3	**Coordinate and transformational geometry.** The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity).
G.4	**Logical argument and constructions.** The student uses the process skills with deductive reasoning to understand geometric relationships.
G.5	**Logical argument and constructions.** The student uses constructions to validate conjectures about geometric figures.
G.6	**Proof and congruence.** The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart.
G.7	**Similarity, proof, and trigonometry.** The student uses the process skills in applying similarity to solve problems.
G.8	**Similarity, proof, and trigonometry.** The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart.
G.9	**Similarity, proof, and trigonometry.** The student uses the process skills to understand and apply relationships in right triangles.
G.10	**Two-dimensional and three-dimensional figures.** The student uses the process skills to recognize characteristics and dimensional changes of two- and three-dimensional figures.
G.11	**Two-dimensional and three-dimensional figures**. The student uses the process skills in the application of formulas to determine measures of two- and three-dimensional figures.
G.12	**Circles.** The student uses the process skills to understand geometric relationships and apply theorems and equations about circles.
G.13	**Probability.** The student uses the process skills to understand probability in real-world situations and how to apply independence and dependence of events.

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TEKS Snapshot – Geometry

(New TEKS – 2015-16)

Rptg Cat	Readiness Standards	Supporting Standards
1 Logical Argument and Constructions	G.4(C) verify that a conjecture is false using a counterexample G.5(A) investigate patterns to make conjectures about geometric relationships, including angles formed by parallel lines cut by a transversal, criteria required for triangle congruence, special segments of triangles, diagonals of quadrilaterals, interior and exterior angles of polygons, and special segments and angles of circles choosing from a variety of tools	G.4(A) distinguish between undefined terms, definitions, postulates, conjectures, and theorems G.4(B) identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse G.4(D) compare geometric relationships between Euclidean and spherical geometries, including parallel lines and the sum of the angles in a triangle G.5(B) construct congruent segments, congruent angles, a segment bisector, an angle bisector, perpendicular lines, the perpendicular bisector of a line segment, and a line parallel to a given line through a point not on a line using a compass and a straightedge G.5(C) use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships G.5(D) verify the Triangle Inequality theorem using constructions and apply the theorem to solve problems
2 Coordinate and Transformational Geometry	G.2(B) derive and use the distance, slope, and midpoint formulas to verify geometric relationships, including congruence of segments and parallelism or perpendicularity of pairs of lines G.2(C) determine an equation of a line parallel or perpendicular to a given line that passes through a given point G.3(B) determine the image or pre-image of a given two-dimensional figure under a composition of rigid transformations, a composition of non-rigid transformations, and a composition of both, including dilations where the center can be any point in the plane	G.2(A) determine the coordinates of a point that is a given fractional distance less than one from one end of a line segment to the other in one- and two-dimensional coordinate systems, including finding the midpoint G.3(A) describe and perform transformations of figures in a plane using coordinate notation G.3(C) identify the sequence of transformations that will carry a given pre-image onto an image on and off the coordinate plane G.3(D) identify and distinguish between reflectional and rotational symmetry in a plane figure G.12(E) show that the equation of a circle with center at the origin and radius r is $x^2 + y^2 = r^2$ and determine the equation for the graph of a circle with radius r and center (h, k), $(x - h)^2 + (y - k)^2 = r^2$
3 Proof and Congruence	G.6(A) verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal and prove equidistance between the endpoints of a segment and points on its perpendicular bisector and apply these relationships to solve problems G.6(B) prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions	G.6(C) apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles G.6(D) verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these relationships to solve problems G.6(E) prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems
4 Similarity and Trigonometry	G.7(B) apply the Angle-Angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems G.9(A) determine the lengths of sides and measures of angles in a right triangle by applying the trigonometric ratios sine, cosine, and tangent to solve problems G.9(B) apply the relationships in special right triangles 30^0-60^0-90^0 and 45^0-45^0-90^0 and the Pythagorean theorem, including Pythagorean triples, to solve problems	G.7(A) apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles G.8(A) prove theorems about similar triangles, including the Triangle Proportionality theorem, and apply these theorems to solve problems G.8(B) identify and apply the relationships that exist when an altitude is drawn to the hypotenuse of a right triangle, including the geometric mean, to solve problems

NOTE: The classification of standards on this snapshot represents the reviewed and synthesized input of a sample of Texas high school mathematics teachers. This snapshot DOES NOT represent a publication of the Texas Education Agency. District curriculum may reflect other classifications.

TEKS Snapshot – Geometry
(New TEKS – 2015-16)

Rptg Cat	Readiness Standards	Supporting Standards
5 Two- and Three-dimensional Figures	G.10(B) determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and non-proportional dimensional change G.11(B) determine the area of composite two-dimensional figures comprised of a combination of triangles, parallelograms, trapezoids, kites, regular polygons, or sectors of circles to solve problems using appropriate units of measure G.11(C) apply the formulas for the total and lateral surface area of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure G.11(D) apply the formulas for the volume of three-dimensional figures, including prisms, pyramids, cones, cylinders, spheres, and composite figures, to solve problems using appropriate units of measure	G.10(A) identify the shapes of two-dimensional cross-sections of prisms, pyramids, cylinders, cones, and spheres and identify three-dimensional objects generated by rotations of two-dimensional shapes G.11(A) apply the formula for the area of regular polygons to solve problems using appropriate units of measure G.12(A) apply theorems about circles, including relationships among angles, radii, chords, tangents, and secants, to solve non-contextual problems G.12(B) apply the proportional relationship between the measure of an arc length of a circle and the circumference of the circle to solve problems G.12(C) apply the proportional relationship between the measure of the area of a sector of a circle and the area of the circle to solve problems G.12(D) describe radian measure of an angle as the ratio of the length of an arc intercepted by a central angle and the radius of the circle
6 Probability	G.13(C) identify whether two events are independent and compute the probability of the two events occurring together with or without replacement	G.13(A) develop strategies to use permutations and combinations to solve contextual problems G.13(B) determine probabilities based on area to solve contextual problems G.13(D) apply conditional probability in contextual problems G.13(E) apply independence in contextual problems

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OLD STAAR STANDARDS

ALGEBRA I

STAAR Standards Snapshot – Algebra I

Rptg Cat	STAAR	STAAR Modified	Readiness Standards	Supporting Standards
1 Functional Relationships	8	*6*	A.1.D represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities A.1.E interpret and make decisions, predictions, and critical judgments from functional relationships	A.1.A describe independent and dependent quantities in functional relationships A.1.B gather and record data and use data sets to determine functional relationships between quantities A.1.C describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations
2 Properties and Attributes of Functions	12	*10*	A.2.B identify mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete A.2.D collect and organize data, make and interpret scatterplots (including recognizing positive, negative, or no correlation for data approximating linear situations), and model, predict, and make decisions and critical judgments in problem situations A.4.A find specific function values, simplify polynomial expressions, transform and solve equations, and factor as necessary in problem situations	A.2.A identify and sketch the general forms of linear ($y = x$) and quadratic ($y = x^2$) parent functions A.2.C interpret situations in terms of given graphs or creates situations that fit given graphs A.3.A use symbols to represent unknowns and variables A.3.B look for patterns and represent generalizations algebraically A.4.B use the commutative, associative, and distributive properties to simplify algebraic expressions A.4.C connect equation notation with function notation, such as $y = x + 1$ and $f(x) = x + 1$
3 Linear Functions	15	*12*	A.5.C use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions A.6.B interpret the meaning of slope and intercepts in situations using data, symbolic representations, or graphs A.6.C investigate, describe, and predict the effects of changes in m and b on the graph of $y = mx + b$ A.6.F interpret and predict the effects of changing slope and y-intercept in applied situations	A.5.A determine whether or not given situations can be represented by linear functions A.5.B determine the domain and range for linear functions in given situations A.6.A develop the concept of slope as rate of change and determine slopes from graphs, tables, and algebraic representations A.6.D graph and write equations of lines given characteristics such as two points, a point and a slope, or a slope and y-intercept A.6.E determine the intercepts of the graphs of linear functions and zeros of linear functions from graphs, tables, and algebraic representations A.6.G relate direct variation to linear functions and solve problems involving proportional change
4 Linear Equations and Inequalities	10	*8*	A.7.B investigate methods for solving linear equations and inequalities using concrete models, graphs, and the properties of equality, select a method, and solve the equations and inequalities A.8.B solve systems of linear equations using concrete models, graphs, tables, and algebraic methods	A.7.A analyze situations involving linear functions and formulate linear equations or inequalities to solve problems A.7.C interpret and determine the reasonableness of solutions to linear equations and inequalities A.8.A analyze situations and formulate systems of linear equations in two unknowns to solve problems A.8.C interpret and determine the reasonableness of solutions to systems of linear equations
5 Quadratics and Other Nonlinear Functions	9	*7*	A.9.D analyze graphs of quadratic functions and draw conclusions A.10.A solve quadratic equations using concrete models, tables, graphs, and algebraic methods	A.9.A determine the domain and range for quadratic functions in given situations A.9.B investigate, describe, and predict the effects of changes in a on the graph of $y = ax^2 + c$ A.9.C investigate, describe, and predict the effects of changes in c on the graph of $y = ax^2 + c$ A.10.B make connections among the solutions (roots) of quadratic equations, the zeros of their related functions, and the horizontal intercepts (x-intercepts) of the graph of the function A.11.A use patterns to generate the laws of exponents and apply them in problem-solving situations A.11.B analyze data and represent situations involving inverse variation using concrete models, tables, graphs, or algebraic methods A.11.C analyze data and represent situations involving exponential growth and decay using concrete models, tables, graphs, or algebraic methods
STAAR	**54 (5 Grid)**		**32-35 questions from Readiness Standards**	**19-22 questions from Supporting Standards**
STAAR Modified		***42 (1 Grid)***	***26-28 questions from Readiness Standards***	***15-17 questions from Supporting Standards***

Source: Texas Education Agency STAAR Resources

REV Oct 2011

OLD STAAR STANDARDS

ALGEBRA II

lead4ward

STAAR Standards Snapshot – Algebra II

Rptg Cat	STAAR	Readiness Standards	Supporting Standards
1 Properties and Attributes of Functions	8	2A.1.A identify the mathematical domains and ranges of functions and determine reasonable domain and range values for continuous and discrete situations 2A.1.B collect and organize data, make and interpret scatterplots, fit the graph of a function to the data, interpret the results, and proceed to model, predict, and make decisions and critical judgments 2A.4.B extend parent functions with parameters such as a in f(x) = a/x and describe the effects of the parameter changes on the graph of parent functions	2A.4.A identify and sketch graphs of parent functions, including linear (f (x) = x), quadratic (f (x) = x^2), exponential (f (x) = a^x), and logarithmic (f (x) = $\log_a x$) functions, absolute value of x (f (x) = $\lvert x \rvert$), square root of x (f (x) = ax), and reciprocal of x (f (x) = 1/x) 2A.4.C describe and analyze the relationship between a function and its inverse
2 Representational Tools to Solve Problems	8	2A.3.A analyze situations and formulate systems of equations in two or more unknowns or inequalities in two unknowns to solve problems 2A.3.B use algebraic methods, graphs, tables, or matrices, to solve systems of equations or inequalities 2A.3.C interpret and determine the reasonableness of solutions to systems of equations or inequalities for given contexts	2A.2.A use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations 2A.2.B use complex numbers to describe the solutions of quadratic equations
3 Properties of Quadratic Functions	12	2A.6.A determine the reasonable domain and range values of quadratic functions, as well as interpret and determine the reasonableness of solutions to quadratic equations and inequalities 2A.6.B relate representations of quadratic functions, such as algebraic, tabular, graphical, and verbal descriptions 2A.8.A analyze situations involving quadratic functions and formulate quadratic equations or inequalities to solve problems 2A.8.D solve quadratic equations and inequalities using graphs, tables, and algebraic methods	2A.6.C determine a quadratic function from its roots (real and complex) or a graph 2A.8.B analyze and interpret the solutions of quadratic equations using discriminants and solve quadratic equations using the quadratic formula 2A.8.C compare and translate between algebraic and graphical solutions of quadratic equations
4 Representations of Quadratic Relations	6	2A.7.A use characteristics of the quadratic parent function to sketch the related graphs and connect between the y = $ax^2 + bx + c$ and the y = a $(x - h)^2$ + k symbolic representations of quadratic functions	2A.5.A describe a conic section as the intersection of a plane and a cone 2A.5.B sketch graphs of conic sections to relate simple parameter changes in the equation to corresponding changes in the graph 2A.5.C identify symmetries from graphs of conic sections 2A.5.D identify the conic section from a given equation 2A.5.E use the method of completing the square 2A.7.B use the parent function to investigate, describe, and predict the effects of changes in a, h, and k on the graphs of y = a $(x - h)^2$ + k form of a function in applied and purely mathematical situations
5 Properties of Square Root Functions	5	2A.9.F analyze situations modeled by square root functions, formulate equations or inequalities, select a method, and solve problems	2A.9.A use the parent function to investigate, describe, and predict the effects of parameter changes on the graphs of square root functions and describe limitations on the domains and ranges 2A.9.B relate representations of square root functions, such as algebraic, tabular, graphical, and verbal descriptions 2A.9.C determine the reasonable domain and range values of square root functions, as well as interpret and determine the reasonableness of solutions to square root equations and inequalities 2A.9.D determine solutions of square root equations using graphs, tables, and algebraic methods 2A.9.E determine solutions of square root inequalities using graphs and tables 2A.9.G connect inverses of square root functions with quadratic functions
6 Properties of Rational Functions	5	2A.10.F analyze a situation modeled by a rational function, formulate an equation or inequality composed of a linear or quadratic function, and solve the problem	2A.10.A use quotients of polynomials to describe the graphs of rational functions, predict the effects of parameter changes, describe limitations on the domains and ranges, and examine asymptotic behavior 2A.10.B analyze various representations of rational functions with respect to problem situations 2A.10.C determine the reasonable domain and range values of rational functions, as well as interpret and determine the reasonableness of solutions to rational equations and inequalities 2A.10.D determine the solutions of rational equations using graphs, tables, and algebraic methods 2A.10.E determine solutions of rational inequalities using graphs and tables 2A.10.G use functions to model and make predictions in problem situations involving direct and inverse variation
7 Properties of Exponential and Logarithmic Functions	6	2A.11.A develop the definition of logarithms by exploring and describing the relationship between exponential functions and their inverses 2A.11.F analyze a situation modeled by an exponential function, formulate an equation or inequality, and solve the problem	2A.11.B use the parent functions to investigate, describe, and predict the effects of parameter changes on the graphs of exponential and logarithmic functions, describe limitations on the domains and ranges, and examine asymptotic behavior 2A.11.C determine the reasonable domain and range values of exponential and logarithmic functions, as well as interpret and determine the reasonableness of solutions to exponential and logarithmic equations and inequalities 2A.11.D determine solutions of exponential and logarithmic equations using graphs, tables, and algebraic methods 2A.11.E determine solutions of exponential and logarithmic inequalities using graphs and tables
STAAR	**50 (5 Grid)**	**30-33 questions from Readiness Standards**	**17-20 questions from Supporting Standards**

Source: Texas Education Agency STAAR Resources

REV Oct 2011

OLD STAAR STANDARDS

GEOMETRY

STAAR Standards Snapshot – Geometry

Rptg Cat	STAAR	STAAR Modified	Readiness Standards	Supporting Standards
1 Geometric Structure	10	*8*	G.2.B make conjectures about angles, lines, polygons, circles, and three-dimensional figures and determine the validity of the conjectures, choosing from a variety of approaches such as coordinate, transformational, or axiomatic G.3.C use logical reasoning to prove statements are true and find counter examples to disprove statements that are false	G.1.B recognize the historical development of geometric systems and know mathematics is developed for a variety of purposes G.1.C compare and contrast the structures and implications of Euclidean and non-Euclidean geometries G.2.A use constructions to explore attributes of geometric figures and to make conjectures about geometric relationships G.3.A determine the validity of a conditional statement, its converse, inverse, and contrapositive G.3.B construct and justify statements about geometric figures and their properties G.3.D use inductive reasoning to formulate a conjecture G.3.E use deductive reasoning to prove a statement
2 Geometric Patterns and Representations	8	*6*	G.5.A use numeric and geometric patterns to develop algebraic expressions representing geometric properties G.5.D identify and apply patterns from right triangles to solve meaningful problems, including special right triangles (45-45-90 and 30-60-90) and triangles whose sides are Pythagorean triples	G.4.A select an appropriate representation (concrete, pictorial, graphical, verbal, or symbolic) in order to solve problems G.5.B use numeric and geometric patterns to make generalizations about geometric properties, including properties of polygons, ratios in similar figures and solids, and angle relationships in polygons and circles G.5.C use properties of transformations and their compositions to make connections between mathematics and the real world, such as tessellations
3 Dimensionality and the Geometry of Location	10	*8*	G.7.B use slopes and equations of lines to investigate geometric relationships, including parallel lines, perpendicular lines, and special segments of triangles and other polygons G.7.C derive and use formulas involving length, slope, and midpoint	G.6.A describe and draw the intersection of a given plane with various three-dimensional geometric figures G.6.B use nets to represent and construct three-dimensional geometric figures G.6.C use orthographic and isometric views of three-dimensional geometric figures to represent and construct three-dimensional geometric figures and solve problems G.7.A use one- and two-dimensional coordinate systems to represent points, lines, rays, line segments, and figures
4 Congruence and the Geometry of Size	16	*14*	G.8.A find areas of regular polygons, circles, and composite figures G.8.C derive, extend, and use the Pythagorean Theorem G.8.D find surface areas and volumes of prisms, pyramids, spheres, cones, cylinders, and composites of these figures in problem situations G.10.B justify and apply triangle congruence relationships	G.8.B find areas of sectors and arc lengths of circles using proportional reasoning G.8.E use area models to connect geometry to probability and statistics G.8.F use conversions between measurement systems to solve problems in real-world situations G.9.A formulate and test conjectures about the properties of parallel and perpendicular lines based on explorations and concrete models G.9.B formulate and test conjectures about the properties and attributes of polygons and their component parts based on explorations and concrete models G.9.C formulate and test conjectures about the properties and attributes of circles and the lines that intersect them based on explorations and concrete models G.9.D analyze the characteristics of polyhedra and other three-dimensional figures and their component parts based on explorations and concrete models G.10.A use congruence transformations to make conjectures and justify properties of geometric figures including figures represented on a coordinate plane
5 Similarity and the Geometry of Shape	8	*6*	G.11.C develop, apply, and justify triangle similarity relationships, such as right triangle ratios, trigonometric ratios, and Pythagorean triples using a variety of methods G.11.D describe the effect on perimeter, area, and volume when one or more dimensions of a figure are changed and apply this idea in solving problems	G.11.A use and extend similarity properties and transformations to explore and justify conjectures about geometric figures G.11.B use ratios to solve problems involving similar figures;
STAAR	**52 (5 Grid)**		**31-34 questions from Readiness Standards**	**18-21 questions from Supporting Standards**
STAAR Modified		***42 (1 Grid)***	***25-27 questions from Readiness Standards***	***15-17 questions from Supporting Standards***