



# STAAR Algebra I Assessment Eligible TEKS

1. Number and Algebraic Methods (11 questions)		
S	A.10A	Add and subtract polynomials of degree one and degree two.
S	A.10B	Multiply polynomials of degree one and degree two.
S	A.10C	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.
S	A.10D	Rewrite polynomial expressions of degree one and degree two in equivalent forms using the distributive property.
R	A.10E	Factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$ , including perfect square trinomials of degree two.
S	A.10F	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.
S	A.11A	Simplify numerical radical expressions involving square roots.
R	A.11B	Simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents.
S	A.12A	Decide whether relations represented verbally, tabularly, graphically, and symbolically define a function.
S	A.12B	Evaluate functions, expressed in function notation, given one or more elements in their domains.
S	A.12C	Identify terms of arithmetic and geometric sequences when the sequences are given in function form using recursive processes.
S	A.12D	Write a formula for the $n^{\text{th}}$ term of arithmetic and geometric sequences, given the value of several of their terms.
S	A.12E	Solve mathematic and scientific formulas, and other literal equations, for a specified variable.

2. Describing and Graphing Linear Functions, Equations, and Inequalities (12 questions)		
S	A.3A	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 $y - y_1 = m(x - x_1)$ .
R	A.3B	Calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems.
R	A.3C	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.
R	A.3D	Graph the solution set of linear inequalities in two variables on the coordinate plane.
S	A.3E	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 of $a$ , $b$ , $c$ , and $d$ .
S	A.3F	Graph systems of two linear equations in two variables on the coordinate plane and determine the solutions if they exist.
S	A.3G	Estimate graphically the solutions to systems of two linear equations with two variables in real-world problems.
S	A.3H	Graph the solution set of systems of two linear inequalities in two variables on the coordinate plane.
S	A.4A	Calculate, using technology, the correlation coefficient between two quantitative variables and interpret this quantity as a measure of the strength of the linear association.
S	A.4B	Compare and contrast association and causation in real-world problems.
S	A.4C	Write, with and without technology, linear functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems.



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## 3. Writing and Solving Linear Functions, Equations, and Inequalities (14 questions)

R	A.2A	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.
S	A.2B	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.
R	A.2C	Write linear equations in two variables given a table of values, a graph, and a verbal description.
S	A.2D	Write and solve equations involving direct variation.
S	A.2E	Write the equation of a line that contains a given point and is parallel to a given line.
S	A.2F	Write the equation of a line that contains a given point and is perpendicular to a given line.
S	A.2G	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.
S	A.2H	Write linear inequalities in two variables given a table of values, a graph, and a verbal description.
R	A.2I	Write systems of two linear equations given a table of values, a graph, and a verbal description.
R	A.5A	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.
S	A.5B	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.
R	A.5C	Solve systems of two linear equations with two variables for mathematical and real-world problems.

## 4. Quadratic Functions and Equations (11 questions)

R	A.6A	Determine the domain and range of quadratic functions and represent the domain and range using inequalities.
S	A.6B	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 ( $f(x) = ax^2 + bx + c$ ).
S	A.6C	Write quadratic functions when given real solutions and graphs of their related equations.
R	A.7A	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.
S	A.7B	Describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions.
R	A.7C	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 of $a$ , $b$ , $c$ , and $d$ .
R	A.8A	Solve quadratic equations having real solutions by factoring, taking square roots, completing the square, and applying the quadratic formula.
S	A.8B	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 questions)

S	A.9A	Determine the domain and range of exponential functions of the form $f(x) = ab^x$ and represent the domain and range using inequalities.
S	A.9B	Interpret the meaning of the values of $a$ and $b$ in exponential functions of the form $f(x) = ab^x$ in real-world problems.
R	A.9C	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.
R	A.9D	Graph exponential functions that model growth and decay and identify key features, including $y$ -intercept and asymptote, in mathematical and real-world problems.
S	A.9E	Write, using technology, exponential functions that provide a reasonable fit to data and make predictions for real-world problems.

## Blueprint Summary

	Total	STAAR	
Readiness	16	60%-65%	32 – 35
Supporting	33	35%-40%	19 – 22
Total Number of Questions on Test: 49 Multiple Choice; 5 Griddable; 54 Total			