

Concept	TEKS Standard	Common Core Standard
<b>ALGEBRA 1</b>		
<b>Linear Functions</b>	A1.02 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	HSF.IF.B.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.
<b>Linear Equations</b>	A1.02 C write linear equations in two variables given a table of values, a graph, and a verbal description	HSF.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.
<b>Write Systems</b>	A1.02 I write systems of two linear equations given a table of values, a graph, and a verbal description	HSF.IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
<b>Rate of Change</b>	A1.03 B calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems	HSF.IF.B.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.
<b>Graphing</b>	A1.03 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	HSF.IF.C.7.A Graph linear and quadratic functions and show intercepts, maxima, and minima.
<b>Linear Inequalities</b>	A1.03 D graph the solution set of linear inequalities in two variables on the coordinate plane	HSA.REI.D.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality) and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.
<b>Distributive Property</b>	A1.05 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	HSA.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
<b>Solve Systems</b>	A1.05 C solve systems of two linear equations with two variables for mathematical and real-world problems	HSA.REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
<b>Domain and Range</b>	A1.06 A determine the domain and range of quadratic functions and represent the domain and range using inequalities	HSA.CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
<b>Quadratic Functions</b>	A1.07 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	HSF.IF.C.7.A Graph linear and quadratic functions and show intercepts, maxima, and minima.
<b>Parent Function</b>	A1.07 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 of $a$ , $b$ , $c$ , and $d$	SF.BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$ , $k f(x)$ , $f(kx)$ , and $f(x + k)$ for specific values of $k$ (both positive and negative); find the value of $k$ given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

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<b>ALGEBRA 1 cont.</b>		
<b>Quadratic Formula</b>	A1.08 A solve quadratic equations having real solutions by factoring, taking square roots, completing the square, and applying the quadratic formula	HSA.REI.B.4.B Solve quadratic equations by inspection (e.g., for $x^2 = 49$ ), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers $a$ and $b$ .
<b>Write Exponential Functions</b>	A1.09 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	HSF.IF.C.8.B Use the properties of exponents to interpret expressions for exponential functions and classify them as representing exponential growth or decay.
<b>Graph Exponential Functions</b>	A1.09 D graph exponential functions that model growth and decay and identify key features, including y-intercept and asymptote, in mathematical and real-world problems	HSF.IF.C.7.D Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.  HSF.IF.C.7.E Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
<b>Trinomials</b>	A1.10 E factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$ , including perfect square trinomials of degree two	HSA.APR.A.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
<b>Exponents</b>	A1.11 B simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents	HSA.SSE.B.3.C Use the properties of exponents to transform expressions for exponential functions.