Table P2.1: High School Mathematics Standards for Transformations on the Coordinate Plane Units

Algebra 1 Graphs of Quadratic Functions	Geometry Transformations and Congruence	Algebra 2 Graphs of Trigonometric Functions
A1.1: For a quadratic function that models a relationship between two quantities, graph and interpret key features of graphs and tables in terms of the quantities. *Key features include intercepts; intervals where the function is increasing, decreasing, positive, or negative; maximums and minimums; and end behavior.* A1.2: Relate the domain of a quadratic function to its graph and, where applicable, to the quantitative relationship it describes. **A1.3: Graph quadratic functions expressed symbolically and show key features of the graph (domain, range, intercepts, maxima, minima), by hand in simple cases and using technology for more complicated cases.** **A1.4: Determine the effects on the graph of the parent function $f(x) = x^2$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, and $f(bx)$ for specific values of a, b, c, and d.**	G.1: Represent transformations in the plane; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (for example, translation versus horizontal stretch). G.2: Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure. Specify a sequence of transformations that will carry a given figure onto another. **G.3: Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.** **G.4: Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.** G1.5: Explain how the criteria for triangle congruence (ASA, SAS, SSS, AAS, and HL) follow from the definition of congruence in terms of rigid motions.	**A2.1: For a trigonometric function that models a relationship between two quantities, graph and interpret key features of graphs and tables in terms of the quantities. *Key features include intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*** A2.2: Relate the domain of a trigonometric function to its graph and, where applicable, to the quantitative relationship it describes. **A2.3: Graph trigonometric functions expressed symbolically and show key features of the graph (period, midline, amplitude), by hand in simple cases and using technology for more complicated cases.** **A2.4: Determine the effects on the graph of the parent function $f(x) = \sin x$, $f(x) = \cos x$, or $f(x) = \tan x$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, and $f(bx)$ for specific values of a, b, c, and d.** A2.5: Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.