

Unit 3 - Quadratic Functions**Quadratic Basics:**

- Be able to evaluate ($f(2) = ?$) with all three forms of QF
- Be able to solve ($f(x) = 2$) with all three forms of QF
- Be able to analyze all three forms of QF for key features (vertex, roots, y-intercepts, points), from both its equation or its graph, with and without the use of graphing display calculators
- Be able to graph/sketch QF from equations presented in any of the three forms
- Be able to apply the features of QF in contextual problems
- Be able to apply concepts from the previous unit (functions) including inverses and transformations to quadratic functions

Quadratic Algebra:

- Be able to solve QE in the form of $f(x) = 0$ by factorization (when $a = 1$ and when $a > 1$) and understand the graphic significance of solutions.
- Be able to solve QE in the form of $f(x) = 0$ using the square root method and the completing the square method, both when $a = 1$ and $a > 1$.
- Be able to solve QE in the form of $f(x) = 0$ using the Quadratic Formula.
- Be able to solve QE using ANY method when presented with equations in the form of systems (i.e solving $f(x) = g(x)$ where either or both f & g are quadratic functions)
- Be able to use the discriminant to predict the number of solutions to the quadratic equation $f(x) = 0$
- be able to create and solve quadratic equations from word problems
- be able to apply knowledge of quadratic functions (features & algebra) to contextual problems when provided with (i) the equation, (ii) the graph, (iii) a data set
- be able to write equations for quadratic data sets with and without a graphing display calculator