# Unit 10: A1-Ch. 9 - Quadratics Functions 

| Content Area: | Math |
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| Course(s): | Algebra1 CP, Algebra 1A, Algebra 1H |
| Time Period: | Marking Period 4 |
| Length: | 21 Days |
| Status: | Published |

## Unit Introduction

## Standards

| MA.F-IF.C. 7 | Graph functions expressed symbolically and show key features of the graph, by hand in <br> simple cases and using technology for more complicated cases. |
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| MA.F-IF.C.7a | Graph linear and quadratic functions and show intercepts, maxima, and minima. <br> MA.F-LE.A.1a <br> MA.A-REI.B.4a that linear functions grow by equal differences over equal intervals, and that <br> expontial functions grow by equal factors over equal intervals. |
| MA.A-REI.B.4b | Use the method of completing the square to transform any quadratic equation in $x$ into an <br> equation of the form $(x-p)^{2}=q$ that has the same solutions. Derive the quadratic formula <br> from this form. |
| Solve quadratic equations by inspection (e.g., for $\left.x^{2}=49\right)$, 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 $a \pm b i$ for real numbers $a$ and $b$. |  |

## Essential Questions

- How can you solve a quadratic function?
- How can you use quadratic functions to model real-world situations?
- What are the characteristics of a quadratic function?


## Content

- 9-1 Quadratic Graphs and their Properties (2 Days)
- 9-2 Quadratic Functions (2 Days)
- 9-3 Solving Quadratic Equations (2 Days)
- 9-4 Factoring to Solve Quadratic Equations (3 Days)
- 9-5 Completing the Square (2 Days)
- 9-6 The Quadratic Formula (2 Days)
- 9-7 Linear, Quadratic and Exponential Models (3 Days)
- 9-8 Systems of Linear and Quadratic Equations (1 Day)


## Skills

- Convert from Standard Form to Vertex Form
- Convert Vertex Form to Standard Form
- Find zeros of a quadratic function from a graph
- Graph a quadratic function in standard form
- Graph a quadratic function in vertex form
- Identify axis of symmetry
- Identify maximum and minimum
- Identify transformations on a quadratic function
- Identify vertex
- Solve quadratic equations by completing the square
- Solve Quadratic Equations using The Quadratic Formula
- Solve quadratic functions by factoring
- Use graphing calculators and technology where appropriate
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- Use relevant Vocabulary, notations, and symbols when appropriate

